

St. Paul Park Refining Co. LLC 301 St. Paul Park Road St. Paul Park, MN 55071 651-459-9771

CERTIFIED MAIL: 70015 1520 0000 3102 3891

January 28, 2019

Air Quality Tracking Coordinator Compliance Determination Unit Air Quality Division Minnesota Pollution Control Agency 520 Lafayette Road North St. Paul, Minnesota 55155-4194



RE: Fourth Quarter 2018 Excess Emission and CEM Report

St. Paul Park Refining Co. LLC AQD Facility ID No: 16300003 AQD File No: 0203 (AI ID 447)

Dear Sir/Madam:

St. Paul Park Refining Co. LLC hereby provides the Minnesota Pollution Control Agency (MPCA) with the enclosed Excess Emission and Continuous Emissions Monitor (CEM) Downtime Report for 4th quarter 2018.

On October 1, 2018, Andeavor completed a merger transaction with Marathon Petroleum Corporation. As such, Andeavor is now a subsidiary of Marathon Petroleum Corporation. All of Andeavor's subsidiaries continue as subsidiaries of Andeavor and thus also subsidiaries of Marathon Petroleum Corporation. In addition, as part of the merger transaction Andeavor is now known as Andeavor LLC. These merger-related transactions involve only Andeavor LLC, and there have been no changes to the Andeavor subsidiaries or to the Andeavor Logistics, LP subsidiaries (including Western Refining Logistics, LP) or its operations. St. Paul Park Refining Co. LLC remains the owner and operator of the refinery. Western Refining Logistics, LP is and will remain the owner and operator of pipeline, gathering, terminalling transportation and storage assets, and thus we are providing this notice as a courtesy.

Please contact me at (651) 769-6766 if you have any questions or if you need additional information.

Respectfully,

Shannon Lian

Environmental Superintendent St. Paul Park Refining Co. LLC

Enclosures

cc: Patrick Foley (EPA) w/report – CERTIFIED MAIL: 7015 1520 0000 3102 3907 USEPA c/o Matrix w/report – CERTIFIED MAIL: 7015 1520 0000 3102 3914 Ms. Jennifer Carlson (MPCA) w/report – CERTIFIED MAIL: 7015 1520 0000 3102 3921 Ms. Cheryl Newton (EPA) w/report – CERTIFIED MAIL: 7015 1520 0000 3102 3938

Fourth Quarter 2018 **Excess Emission and CEM Report**

	St. Paul Park Refining Co. LLC		
Section	Description		
1	Report Certification		
2	Report Summary		
	Percent Excess Emission and CEM Downtime Summary		
	Excess Emissions Summary		
	Incident A - Flare H ₂ S Exceedance During Refinery Turnaround		
	Incident B - Flare H ₂ S Exceedance During Refinery Turnaround		
	Incident C - Flare Visual Emissions > 5 minutes/2-hours during Unit Start-up		
	Incident D - FCC flue gas CO > 500 ppm/1-hr Avg. during Unit Start-up		
	Incident E - Flare H ₂ S Exceedance During Unit Start-up		
	Incident F - Flare H2S Exceedance Due to PSV Malfunction		
	Incident G - Flare H2S Exceedance, Depressuring 32-GC-8 for Maintenance		
	Incident H - Flare Visible Emissions due to SDA Pump Malfunction		
	Incident I - Flare H2S Exceedance Due to PSV Malfunction		
	Incident J - Exceedance of FCC 20%/3-hr Limit due to Baghouse Malfunction		
	Incident K – Exceedance of FCC Opacity 6-min Average		
	SBC/BWON Vent Gas System		
	SARA Reportable Releases		
	Monitor Bypasses Summary		

Monitor Bypasses Summary
SRU Bypasses Summary Continuous Emissions Downtime Summary

3	Excess Emi	ssions and CEM Reporting Forms	Page
	COMG7	Refinery Fuel Gas System	3-1
	EQUI1	Heater 28-B-1	3-5
	EQUI2	FCC Regenerator (Opacity)	3-9
	EQUI2	FCC Regenerator (CO)	3-13
	EQUI2	FCC Regenerator (NO _x ppm)	3-16
	EQUI2	FCC Regenerator (SO ₂ ppm)	3-20
	EQUI2	FCC Regenerator (SO ₂ lb/hr)	3-24
	EQUI2	FCC Regenerator (SO _x)	3-27
	EQUI3	Heater 5-B-1	3-30
	EQUI4	Heater 2-B-3 (NO _x)	3-34

Table of Contents

EQUI4	Heater 2-B-3 (SO ₂)	3-38
EQUI5	Heater 1-B-5	3-43
EQUI6	Heater 1-B-7	3-47
EQUI7	Heater 29-B-1/2	3-51
EQUI8	Heater 3-B-1/2/3	3-55
EQUI9	Heater 3-B-4	3-59
EQUI10	Heater 3-B-7	3-63
EQUI11	Heater 3-B-8	3-67
EQUI12	Heater 34-B-1	3-71
EQUI13	Heater 34-B-2	3-75
EQUI14	Heater 32-B-1 (NO_x)	3-79
EQUI14	Heater 32-B-1	3-82
EQUI15	Heater 10-B-1	3-86
EQUI16	#2 SRU/SCOT (SO ₂ ppm)	3-90
EQUI16	#2 SRU/SCOT (SO ₂ lb/hr)	3-94
EQUI17	Heater 36-B-1	3-98
EQUI18	Heater 36-B-2/3/4	3-102
EQUI19	Heater 36-B-6E	3-106
EQUI20	Heater 36-B-6W	3-110
EQUI21	Heater 37-B-1	3-114
EQUI326	Heater 37-B-2	3-118
EQUI23	Heater 38-B-1/2	3-122
EQUI28	Light Oil Loadrack (Vapor Recovery Unit)	3-127
EQUI41	Light Oil Loadrack (Permanent Vapor Combustor Unit)	3-130
TREA13	Refinery Flare Stack (Main Flare) (SO ₂)	3-133
EQUI328	WWTP Thermal Oxidizer (SBC Vent Gas H ₂ S/TO Temp.)	3-139
EQUI328	WWTP Thermal Oxidizer (N ₂ Header/TO Temp.)	3-144
EQUI33	#3 Sulfur Recovery Unit (SO ₂ ppm)	3-147
EQUI33	#3 Sulfur Recovery Unit (SO ₂ lb/hr)	3-151
EQUI38	Vacuum Enhanced Product Recovery (VEPR) Phase 1	3-155
EQUI39	Vacuum Enhanced Product Recovery (VEPR) Phase 2	3-158
EQUI42	Boiler No. 7 (NO _x lb/mmbtu)	3-161
EQUI42	Boiler No. 7 (SO ₂)	3-164
EQUI43	Boiler No. 8 (NO _x lb/mmbtu)	3-167
EQUI43	Boiler No. 8 (SO ₂)	3-170
EQUI44	Heater 8-B-1 (NOx ppm)	3-173
EQUI44	Heater 8-B-1 (NOx ppm)	3-176
COMG27	Boilers No. 7 and No. 8 (CO, TPY)	3-179
COMG27	Boilers No. 7 and No. 8 (NOx, TPY)	3-183
TREA13	Refinery Flare Stack (Main Flare) (H ₂ S)	3-187
TREA13	Refinery Flare Stack (Temporary Flare) (SO ₂)	3-190
TREA13	Refinery Flare Stack (Temporary Flare) (H ₂ S)	3-196

Table of Contents

Appendix A Quarterly CGA Results

-					
Cylinder Gas Audits/Internal Calibration Error Tests Conducted. All CGAs passed					
October 22, 2018	EQUI42	Boiler #7 $(O_2)/(NO_x)/(CO)$			
October 22, 2018	EQUI43	Boiler #8 (O ₂)/ (NO _x)/ (CO)			
October 22, 2018	EQUI4	#2 Crude 2-B-3 (O ₂)/ (NO _X)			
October 25, 2018	EQUI28	VRU (TOC as Propane)			
October 25, 2018	EQUI33	#3 SRU (O ₂)/ (SO ₂)			
October 25, 2018	EQUI16	#2 SRU (O ₂)/ (SO ₂)			
October 29, 2018	EQUI2	FCC Opacity			
November 1, 2018	EQUI44	Heater 8-B-1(NO _x)/ (O ₂)			
November 7, 2018	EQUI14	HDH 32-B-1 (NO _X)/ (O ₂)			
November 19, 2018	TREA13	#1 Flare (H2S)			
November 19, 2018	EQUI328	WWTP Thermal Oxidizer (H ₂ S)			
November 20, 2018	TREA13	#1 Flare (SO2)			
November 29, 2018	COMG7	Fuel Gas Balance Drum (H ₂ S)			
November 27, 2018	EQUI2	FCC Regenerator (O ₂ /CO ₂ /NOx/CO/SO ₂)			

Relative Accuracy Test Audits (RATA). There were no RATA's conducted 4th quarter 2018.

Appendix B Amended 1QTR18 CEMS Excess Emissions and Downtime Report, Incident B-FCC Unit Trip Due to Low Feed, Emissions Summary, and FCC Excess Emissions and CEM Reporting Form

Section 1 Report Certification

Certification for 4th Quarter 2018 CEM Excess Emission and CEM Downtime Report

This section of the report serves as the St. Paul Park Refining Co. LLC and Western Refining Terminals LLC's written certification of the information contained within this report. This certification is comprehensive of the entire report and replaces the need for certification of each of the Excess Emissions and CEM Reporting Forms.

St. Paul Park Refining Co. LLC & Western Refining Terminal LLC

Based on the information and belief formed after reasonable inquiry, the statements and information in this report are true, accurate, and complete.

Tommy Chavez, Vice-President & Refinery Manager

Toly

1-28-20/C

Section 2 Report Summary

Excess Emissions Summary Fourth Quarter 2018

Excess Emissions Summary

Incident A - Flare H2S Exceedance During Refinery Turnaround

On October 4, 2018, an increase in flare H₂S concentration was noted. Flare H₂S scavenger was verified at maximum injection rate and efforts began to identify a source. After the initial H₂S spike was observed, the level in the flare began to decrease. The source of the H₂S to the flare is unknown due to multiple pieces of equipment and piping that was being vented to the flare at the time of the exceedance because the refinery units were being de-inventoried for turnaround maintenance activities. For future turnarounds, planning will consider whether a TAR unit decontamination strategy is needed based on the timing and complexity of the unit shutdown, depressurization, and cleaning activities.

The flare H₂S 162 ppm/3-hr limit was exceeded for two hours. There was no exceedance of the applicable flare vent gas work practice standard or 500 lbs SO₂/24-hr reportable quantity.

Periods Over 162 ppm H ₂ S, 3-hour Avg.	Date and Time	Measured 3- Hour Avg. (ppm H ₂ S)
1	10/04/18 16:00	205
2	10/04/18 17:00	259

Incident B - Flare H₂S Exceedance During Refinery Turnaround

On October 5, 2018, the Crude Unit vented the tail gas compressor to the flare. An increase in flare H₂S occurred beyond what was expected to have been contributed by the compressor alone. Operations suspected another sour source of H₂S was also venting to the flare from other equipment depressurization/cleaning activities. A call was made to discontinue all venting to the flare and addition of the flare H₂S scavenger began. The source of the H₂S to the flare is unknown due to multiple pieces of equipment and piping that was being vented to the flare at the time of the exceedance because refinery unites were being de-inventoried for turnaround maintenance activities. For future turnarounds, planning will consider whether a TAR unit decontamination strategy is needed based on the timing and complexity of the unit shutdown, depressurization, and cleaning activities.

The flare H_2S 162 ppm/3-hr limit was exceeded for ten hours. There was no exceedance of the applicable flare vent gas work practice standard or 500 lbs $SO_2/24$ -hr reportable quantity.

Periods Over 162 ppm H ₂ S, 3-hour Avg.	Date and Time	Measured 3- Hour Avg. (ppm H ₂ S)
1	10/05/18 13:00	224
2	10/05/18 14:00	284
3	10/05/18 15:00	420
4	10/05/18 16:00	471
5	10/05/18 17:00	425
6	10/05/18 18:00	281
7	10/05/18 19:00	276

Periods Over 162 ppm H ₂ S, 3-hour Avg.	Date and Time	Measured 3- Hour Avg. (ppm H ₂ S)
8	10/05/18 20:00	356
9	10/05/18 21:00	490
10	10/05/18 22:00	299

Incident C – Flare Visible Emissions > 5 minutes/2-hours during Unit Start-up

On October 12, 2018, while starting-up the Sat Gas/Dehex Unit, the flare vent gas flow rate increased to 11 MSCFD; console operators began reviewing process parameters to determine the cause. The flaring resulted in visible emissions at the flare for approximately 78 minutes within a 2-hour period (20:00 – 22:00). During field operators troubleshooting efforts, it was discovered that exchanger 10-E-1 was not isolated which caused PSV 25 on the Stripper Tower to lift during stripper pressure increase in the start-up sequence. 10-E-1 is isolated from the stripper during normal operations. During turnaround a valve on the exchanger was replaced, subsequently the exchange was air freed during start-up and was not properly isolated from the stripper. When discovered, operators isolated 10-E-1 to reset PSV 25 and flare flow returned to normal. To prevent recurrence, 10-E-1 will be safely isolated from the process when the stripper is operating with additional safeguards put in place for verification of exchanger isolation (i.e., car seal procedure, start-up procedures).

There was no exceedance of the applicable flare vent gas work practice standard, flare 162 ppm $H_2S/3$ -hr or 500 lbs $SO_2/24$ -hr reportable quantity limits.

Incident D – FCC flue gas CO > 500 ppm/1-hr Avg. during Unit Start-up

During start-up of the FCC Unit on October 12, 2018, torch oil was used to warm-up the unit and exceedance of the CO 500 pm/1-hr avg. limit occurred for 44 hours. Excess oxygen was maintained > 1% for 43 of 44 hours (i.e., 5:00 -6:00 am).

To ensure excess oxygen is maintained >1% during FCC Unit hot stand-by and start-up, the cold start procedure will be updated to include a requirement for excess oxygen to be maintained >1% before torch oil is added to the FCC and during start-up.

Since measured CO data points are not verifiable or accurate when 50% greater than the high calibration gas concentration, a value of 1,333.4 ppm (1.5 times the daily span calibration gas concentration of 883.6 ppm CO) was substituted for all greater data points. The recalculated and verifiable value is provided in the last column of the table. SPPRC believes these periods to be exempt under SSM provisions NSPS J of the regulations and is providing the data for informational purposes only.

For compliance with MACT CC FCC 500 ppm/1-hr avg. CO limit, since these exceedances occurred during hot-standby/start-up of the FCC and oxygen was maintained for 43 of 44 hours, only one exceedance of the limit occurred.

Periods Over 500 ppm CO @ 0% O ₂ 1- hour Avg.	Date and End Time	Measured 1-Hour Avg. (ppm CO)	Verified 1-hour Avg. (ppm CO)	% O2
1	10/12/18, 10:00	1619.1	1231.1	>1%
2	10/12/18, 11:00	1949.0	1325.4	>1%
3	10/12/18, 12:00	2353.9	1325.4	>1%

Periods Over 500 ppm CO @ 0% O ₂ 1-	Date and End Time	Measured 1-Hour Avg. (ppm	Verified 1-hour Avg. (ppm CO)	% O2
hour Avg.		CO)		
4	10/12/18, 13:00	2471.1	1325.4	>1%
5	10/12/18, 14:00	2526.6	1325.4	>1%
6	10/12/18, 15:00	2476.2	1325.4	>1%
7	10/12/18, 16:00	2177.5	1325.4	>1%
8	10/12/18, 17:00	2053.9	1325.4	>1%
9	10/12/18, 18:00	1781.8	1306.6	>1%
10	10/12/18, 19:00	1345.7	1315.0	>1%
11	10/12/18, 20:00	1283.7	1253.6	>1%
12	10/12/18, 21:00	1764.1	1246.3	>1%
13	10/12/18, 22:00	1290.4	1325.4	>1%
14	10/12/18, 23:00	1716.1	1201.9	>1%
15	10/13/18, 00:00	1934.9	1261.1	>1%
16	10/13/18, 01:00	1706.6	1189.6	>1%
17	10/13/18, 02:00	1076.4	837.4	>1%
18	10/13/18, 03:00	2356.1	1319.5	>1%
19	10/13/18, 04:00	2481.1	1325.4	>1%
20	10/13/18, 05:00	2477.2	1325.4	>1%
21	10/13/18, 06:00	2280.3	1325.4	>1%
22	10/13/18, 07:00	2370.8	1325.4	>1%
23	10/13/18, 08:00	2380.8	1325.4	>1%
24	10/13/18, 09:00	2064.9	1325.4	>1%
25	10/13/18, 10:00	2363.1	1322.0	>1%
26	10/13/18, 11:00	2285.3	1325.4	>1%
27	10/13/18, 12:00	2279.8	1325.4	>1%
28	10/13/18, 13:00	2368.1	1325.4	>1%
29	10/13/18, 14:00	2367.1	1325.4	>1%
30	10/13/18, 15:00	2345.7	1325.4	>1%
31	10/13/18, 16:00	2348.2	1325.4	>1%
32	10/13/18, 17:00	2366.9	1325.4	>1%
32	10/13/18, 18:00	2498.0	1325.4	>1%
33	10/13/18, 19:00	2247.8	1325.4	>1%
34	10/13/18, 20:00	2457.5	1325.4	>1%
35	10/13/18, 21:00	2471.5	1325.4	>1%
36	10/13/18, 22:00	2480.7	1325.4	>1%
37	10/13/18, 23:00	2464.8	1325.4	>1%
38	10/14/18, 00:00	2536.6	1325.4	>1%
39	10/14/18, 01:00	1964.8	1260.1	>1%
40	10/14/18, 02:00	2178.5	1304.3	>1%
41	10/14/18, 03:00	2267.1	1325.4	>1%
42	10/14/18, 04:00	2436.2	1325.4	>1%
43	10/14/18, 05:00	1878.2	961.4	<1%
44	10/14/18, 06:00	2009.8	1031.6	>1%

Incident E - Flare H₂S Exceedance During Unit Start-up

On 10/13/2018, during unit start-up, the level indication on the HDH Stripper Overhead Receiver (32F7) stuck at 25%. This caused 32F7 to fill up and send liquid to the sour gas knock out drum (11F8) which in turn filled up and sent excess liquid to the Amine Absorber (31D2B). The excess liquid then went to the Rich Amine Flash Drum (31F18) and then on to the Amine Tank (31T1). This caused the level in the Amine Tank to rise three feet over two hours. While trying to lower the level in 31T1, additional amine was sent to the Amine Absorber. The additional amine combined with the hydrocarbon coming into the system from the HDH Stripper Overhead Receiver caused the Rich Amine Flash drum to become liquid full and carry over to the Sour Gas KO Pot (30F9) and then on to the Tail Gas Compressor Suction Drum (2F10). The liquid level in 2F10 tripped the Tail Gas Compressor causing 30PC5A to open to the flare relieving sour gas to the flare. Flare H2S scavenger was used.

To prevent the level indicator on 32F7 from malfunctioning the future, a step to the existing preventive maintenance procedure will be added for cleaning and functional testing to confirm proper operation. In addition, level checks by operators will begin as soon as feed is introduced to the unit and levels begin to build in unit vessels and towers.

The flare H₂S 162 ppm/3-hr limit was exceeded for nine hours. There was no exceedance of the applicable flare vent gas work practice standard or 500 lbs SO₂/24-hr reportable quantity.

Periods Over 162 ppm H ₂ S, 3-hour Avg.	Date and Time	Measured 3-Hour Avg. (ppm H ₂ S)
1	10/14/18 05:00	692
2	10/14/18 06:00	1574
3	10/14/18 07:00	2456
4	10/14/18 08:00	2658
5	10/14/18 09:00	2652
6	10/14/18 10:00	2513
7	10/14/18 11:00	1794
8	10/14/18 12:00	984
9	10/14/18 13:00	276

Incident F - Flare H2S Exceedance Due to PSV Malfunction

On October 16, 2018, operations began start-up of tail gas compressor (2-GC-2B) and noticed a flare H₂S spike. Flare H₂S scavenger was injected at maximum rate and troubleshooting to determine the sour H₂S source began and 2-PSV-235 was found to be relieving to the flare from the tail gas compressor. Operations switched from the main tail gas compressor to the back-up tail gas compressor. The cause of the PSV lift was unknown until occurrence of a similar incident on November 12-13, 2018 which identified the cause (see Incident I).

The flare H₂S 162 ppm/3-hr limit was exceeded for three hours. There was no exceedance of the applicable flare vent gas work practice standard or 500 lbs SO₂/24-hr reportable quantity.

Periods Over 162 ppm H ₂ S, 3-hour Avg.	Date and Time	Measured 3-Hour Avg. (ppm H ₂ S)
1	10/16/18 12:00	232
2	10/16/18 13:00	308
3	10/16/18 14:00	299

Incident G – Flare H2S Exceedance, Depressuring 32-GC-8 for Maintenance

On October 16, 2018, the reformer was depressuring compressor 32-GC-8 to the flare through an H₂S scrubber to prepare for maintenance. Addition of flare H₂S scavenger was started and troubleshooting began to determine the source of H₂S. A valve used to isolate the compressor was leaking to the flare. To prevent recurrence, hard piping from the double block and bleeds from the compressor will be replaced with block valves equipped with bull plugs.

Periods Over	Date and Time	Measured 3-
162 ppm H ₂ S, 3-hour Avg.	Sec. of the second	Hour Avg. (ppm H ₂ S)
1	10/16/18 22:00	261
2	10/16/18 23:00	275
3	10/17/18 0:00	281

The flare H₂S 162 ppm/3-hr limit was exceeded for three hours. There was no exceedance of the applicable flare vent gas work practice standard or 500 lbs SO₂/24-hr reportable quantity.

Incident H - Flare Visible Emissions due to SDA Pump Malfunction

On 10/22/2018, the SDA main solvent pump tripped causing 44-PSV-311 to lift and vent to the flare which resulted in visible emissions for 7 minutes 21 seconds within a two-hour period (8:45 – 10:45 am). Operations restarted the pump after the trip, but the PSV would not reseat. The SDA Unit was shut down so that the PSV could be removed and tested. Incorrect factory temperature settings on the pump resulted (in the solvent pump trip. The temperature setting on the pump has been corrected.

There was no exceedance of the applicable flare vent gas work practice standard, flare 162 ppm $H_2S/3$ -hr or 500 lbs $SO_2/24$ -hr reportable quantity limits.

Incident I - Flare H2S Exceedance Due to PSV Malfunction

On November 12, 2018, an increase in flare H₂S occurred and troubleshooting began to determine source of sour H₂S. Flare H₂S scavenger was already being used due to an increase in flare H₂S noted by Operations on November 11, 2018. The Crude Unit Tail Gas Compressor (02-GC-2B) was identified as a potential source. The compressor was shut down and the back-up compressor was placed on-line. 02-PSV-235 on the compressor was isolated and the flare H₂S began to decrease. Further troubleshooting determined that the PSV was working properly but heat tracing on the impulse line on the PSV was installed incorrectly resulting in freezing of the instrument when the temperature was below freezing. When the impulse line freezes, pilot pressure is no longer available to maintain control of the instrument and the instrument malfunctions. The instrumentation was winterized with electrical heat tracing and an insulation blanket. Tail Gas Compressor (02-GC-2B) was returned to service with no issue. The malfunction of the PSV due to winter conditions is likely the cause of the flare H2S exceedance that occurred on October 16, 2018 (i.e., see Incident F).

To prevent recurrence, operational and maintenance procedures will be updated to include verification during winter months that pilot operated PSVs are properly insulated after maintenance and prior to start-up.

Periods Over 162 ppm H ₂ S, 3-hour Avg.	Date and Time	Measured 3- Hour Avg. (ppm H ₂ S)
1	11/12/18 0:00	249

Periods Over 162 ppm H ₂ S, 3-hour Avg.	Date and Time	Measured 3- Hour Avg. (ppm H ₂ S)
2	11/12/18 1:00	371
3	11/12/18 2:00	384
4	11/12/18 3:00	302
5	11/12/18 4:00	179
6	11/12/18 13:00	183
7	11/12/18 14:00	191
8	11/13/18 6:00	170
9	11/13/18 7:00	179
10	11/13/18 8:00	189
11	11/13/18 9:00	186
12	11/13/18 10:00	176

The flare H_2S 162 ppm/3-hr limit was exceeded for twelve hours. There was no exceedance of the applicable flare vent gas work practice standard or 500 lbs $SO_2/24$ -hr reportable quantity.

Incident J - Exceedance of FCC 20%/3-hr Limit due to Baghouse Malfunction

On 11/25/2018, at approximately 8-F-50 FSS (i.e., one of the filter systems that controls particulates from the FCC) was taken off-line to allow for cooling prior to bag change-out. While 8-F-50- FSS was cooling, and the FCC regenerator was venting to 8-F-49-FSS, a bag failure occurred on 8-F-49-FSS which resulted in an increase in opacity above 20%. Bags were replaced on 8-F-50 and was returned to service and 8-F-499 FSS was taken off-line. Preventive maintenance is conducted on the baghouses routinely. In addition, the differential pressure in each baghouse is continuously monitored to identify conditions in which bags may become plugged or a hole were to develop.

Periods over 20%/3-hour Avg.		
	Time	Avg. (% opacity)
1	11/26/18 2:00	21
2	11/26/18 3:00	21
3	11/26/18 4:00	22
4	11/26/18 5:00	23
5	11/26/18 6:00	23
6	11/26/18 7:00	23
7	11/26/18 8:00	23
8	11/26/18 9:00	24
9	11/26/18 10:00	24
10	11/26/18 11:00	24
11	11/26/18 12:00	25
12	11/26/18 13:00	25
13	11/26/18 14:00	25
14	11/26/18 15:00	24
15	11/26/18 16:00	25

t

Periods over 20%/3-hour Avg.	Date and Time	20% Opacity//3-hour Avg. (% opacity)
16	11/26/18 17:00	25
17	11/26/18 18:00	25
18	11/26/18 19:00	25
19	11/26/18 20:00	26
20	11/26/18 21:00	26
21	11/26/18 22:00	26
22	11/26/18 23:00	26
23	11/26/18 0:00	25
24	11/27/18 1:00	24
25	11/27/18 2:00	23
26	11/27/18 3:00	23
27	11/27/18 4:00	23
28	11/27/18 5:00	24
29	11/27/18 6:00	24
30	11/27/18 7:00	24
31	11/27/18 8:00	22

Incident K – Exceedance of FCC Opacity 6-min Average

On 12/17/2018, Operations was beginning the process of bypassing the fourth stage separator, 8-F-50 and an increase in FCC 6-minute average opacity resulted. When the increase was noted, the valve sequencing for the bypass was reversed and the opacity returned to normal levels.

SPPRC believes these periods to be exempt under SSM provisions of the regulations and is providing the data for informational purposes only.

Periods over 30%	Periods over 30%	Date and	6-min Avg. Opacity
Opacity/6-min Avg. (Running total)	Opacity/6-min Avg.	Time	(% opacity)
	Allowed		
1	1	12/17/18 19:30	39.4
2		12/17/18 19:36	40.7

SARA Reportable Release Summary

There were no SARA reportable releases during 4th quarter 2018.

SBC/BWON Vent Gas System

During the 4th quarter 2018, BWON vent gasses were bypassed around the WWTP TO and associated temperature monitor 0.28% percent of the time or 6.2 hours.

Bypasses were the result of natural gas curtailment, scheduled maintenance and/or testing activities, or minor WWTP malfunctions where the oxidizer is bypassed due to safety concerns and process malfunctions.

Monitor Bypass Summary

There were no monitor bypasses during the 4th quarter 2018.

SRU Bypass Summary

There were no SRU bypasses during the 4^{th} quarter 2018 that resulted in an exceedance of an SO_2 emission limit.

Temporary Flare

As previously reported, a planned maintenance turnaround was completed at the refinery during September and October 2018. As part of this turnaround, SPPRC replaced the existing main flare stack and flare tip. A temporary flare was used while the flare was out of service. The replacement of the existing flare and temporary flare operation began September 26th and was completed October 6th.

Section 3 Excess Emissions and CEM Reporting Forms

### SAUCH SOLICE (Sprew, 12-hr ave) ### SAUCH SOLICE (Sprew, 3-hr rolling ave) ### SAUCH SOLICE (Sprew, 3-hr rolling ave) ### SAUCH (Sprew		
### SEND/SCOT 802/02 (1bs/hr, 1-hr ave) ### SEND/SCOT 802/02 (1bs/hr, 3-hr rolling ave) ### SEND/SCOT bypasses ### 0.0. ### 16ater 36-B-1 (1bs 802/hr, 3-hr rolling ave) ### 0.0. ### 16ater 36-B-1 (1bs 802/hr, 3-hr rolling ave) ### 0.0. ### 16ater 36-B-1 (1bs 802/hr, 3-hr rolling ave) ### 0.0. ### 16ater 36-B-2, 3, and 4 (1bs 802/mt, 3-hr rolling ave) ### 0.0. ### 16ater 36-B-2, 3, and 4 (1bs 802/mthu, 3-hr rolling ave) ### 16ater 36-B-2, 3, and 4 (1bs 802/mthu, 3-hr rolling ave) ### 16ater 36-B-6E (1bs 802/mthu, 3-hr rolling ave) ### 16ater 37-B-1 (1bs 802/mthu, 3-hr rolling ave) ### 16ater 37-B-2 (1bs 802/mthu, 3-hr rolling ave) ### 16ater 38-B-1, 38-B-2 (3B-2 (1bs 802/mthu) ### 16ater 38-B-1, 38-B-2 (3B-2 (1bs 802/mthu) ### 16ater 38-B-1, 38-B-2 (3B-2 (1bs 802/mthu) ### 16ater 38-B-1 (3B-3 (3B-2 (1bs 802/mthu) ### 16ater 38-B-1 (3B-3 (1bs 802/mthu) ### 16ater 38-B-1 (3B-3 (1bs 802/mthu) ### 16ater 38-B-	nission Percent ceeded This arter (1)	Continuous Monitor Downtime Percent This Quarter (2,3)
## SEMU/SCOT BOX/OC (1bs/hr, 3-hr rolling ave)	.00%	0.05%
MEAST 36-8-1 (The SOZ/hm, 3-hr rolling ave)	.00%	0.05%
Reater 36-B-1 (lbs SO2/hr, 3-hr rolling ave)	.00%	0.05%
	.00%	
	.00%	
Reater 36-B-2, 3, and 4 (1bs SO2/mr, 3-hr rolling ave) 0.	.00%	0.00%
Heater 36-B-2, 3, and 4 (lbs SO2/mmbtu, 3-hr rolling ave)	.00%	
	.00%	
Heater 36-B-5E (lbs SO2/mn, 3-hr rolling ave)		0.00%
Heater 36-B-6E (ull gas flow meter	.00%	
Heater 36-B-6W (1bs SO2/hr, 3-hr rolling ave) 0. Heater 36-B-6W (1bs SO2/hr, 3-hr rolling ave) 0. Heater 36-B-6W (tells SO2/hr, 3-hr rolling ave) 0. Heater 37-B-1 (1bs SO2/hr, 3-hr rolling ave) 0. Heater 37-B-1 (1bs SO2/hr, 3-hr rolling ave) 0. Heater 37-B-1 (tells SO2/hr, 3-hr rolling ave) 0. Heater 37-B-1 (tells SO2/hr, 3-hr rolling ave) 0. Heater 37-B-2 (1bs SO2/hr, 3-hr rolling ave) 0. Heater 37-B-2 (tells SO2/hr, 3-hr rolling ave) 0. Heater 37-B-2 (tells SO2/hr, 3-hr rolling ave) 0. Heater 37-B-2 (tells SO2/hr, 3-hr rolling ave) 0. Heater 38-B-1, 38-B-2 (th SO2/hr, 3-hr rolling ave) 0. Heaters 38-B-1, 38-B-2 (th SO2/hr, 3-hr rolling ave) 0. Heaters 38-B-1, 38-B-2 (th SO2/hr, 3-hr rolling ave) 0. Heaters 38-B-1, 38-B-2 (th SO2/hr, 3-hr rolling ave) 0. Heaters 38-B-1, 38-B-2 (th SO2/hr, 3-hr rolling ave) 0. Heaters 38-B-1, 38-B-2 (th SO2/hr, 3-hr rolling ave) 0. Heaters 38-B-1, 38-B-2 (th SO2/hr, 3-hr rolling ave) 0. Heaters 38-B-1, 38-B-2 (th SO2/hr, 3-hr rolling ave) 0. Heaters 38-B-1, 38-B-2 (th SO2/hr, 3-hr rolling ave) 0. Heaters 38-B-1, 38-B-2 (th SO2/hr, 3-hr rolling ave) 0. Heaters 38-B-1, 38-B-2 (th SO2/hr, 3-hr rolling average) 0. Light oil loadrack Permanent VCU (Limit = Temp ≥215 deg F, 3-hr rolling ave) 0. Refinery flare (presence of pilots) 0. Refinery flare (presence of pilots) 0. Refinery flare (presence of pilots) 0. Temporary flare - SARA Reportable emissions - NOx 0. Temporary flare - SARA Reportable emissions - NOx 0. Temporary flare - SARA Reportable emissions - NOx 0. Temporary flare - SARA Reportable emissions - NOx 0. Temporary flare - SARA Reportable emissions - NOx 0. Temporary flare - SARA Reportable emissions - NOx 0. Temporary flare - H2S (3-hour rolling average) 0. W. W. T. P. Thermal Oxidizer, NEARAP Offgas (Temp Deg F, 3-hr rolling ave) 0. W. W. T. P. Thermal Oxidizer, NEAR	.00%	
Reater 36-B-6W (lbs SO2/mmbtu, 3-hr rolling ave) 0.		0.00%
Heater 37-B-6W fuel gas flow meter	.00%	
Heater 37-B-1 (lbs SO2/hr, 3-hr rolling ave) 0.	.00%	
Heater 37-B-1 (lubs SO2/mmbtu, 3-hr rolling ave)		0.00%
Heater 37-B-1 fuel gas flow meter Heater 37-B-2 (lbs SO2/hr, 3-hr rolling ave) Heater 37-B-2 (lbs SO2/hr, 3-hr rolling ave) Heater 37-B-2 fuel gas flow meter Heaters 38-B-1, 38-B-2 (lbs SO2/hr, 3-hr rolling ave)	.00%	
Heater 37-B-2 (1bs SO2/hr, 3-hr rolling ave)		0.00%
Heater 37-B-2 (1bs SO2/mmbtu, 3-hr rolling ave) Heater 37-B-2 fuel gas flow meter	.00%	0.00%
Heaters 37-B-2 fuel gas flow meter Heaters 38-B-1, 38-B-2 (lb SO2/hr, 3-hr rolling ave) Heaters 38-B-1, 38-B-2 (lb SO2/mmbtu, 3-hr rolling ave) Heaters 38-B-1, 38-B-2 (lb SO2/mmbtu, 3-hr rolling ave) Heaters 38-B-1, 38-B-2 PSB Gas flow meter Light oil loadrack VRU (TOC ppmv, 6-hr average) Light oil loadrack VRU (TOC ppmv, 6-hr average) Light oil loadrack Permanent VCU (Limit = Temp >215 deg F, 3-hr rolling ave) Refinery flare (presence of pilots) Refinery flare (presence of pilots) Refinery flare - SARA Reportable emissions - SO2 Refinery flare - H2S (3-hour rolling average) Temporary flare - H2S (3-hour rolling average) Temporary flare - SARA Reportable emissions - SO2 Temporary flare - SARA Reportable emissions - NOX	.00%	
Heaters 38-B-1, 38-B-2 (1b SO2/hr, 3-hr rolling ave) Heaters 38-B-1, 38-B-2 (1b SO2/mmbtu, 3-hr rolling ave) O. Heaters 38-B-1, 38-B-2 NSP Gas flow meter Light oil loadrack VRU (TOC ppmv, 6-hr average) Light oil loadrack Permanent VCU (Limit = Temp ≥215 deg F, 3-hr rolling ave) O. Light oil loadrack Permanent VCU (Limit = Temp ≥215 deg F, 3-hr rolling ave) Refinery flare (presence of pilots) Refinery flare - SARA Reportable emissions - SO2 O. Refinery flare - SARA Reportable emissions - NOx Refinery flare - SARA Reportable emissions - NOx Refinery flare - H2S (3-hour rolling average) Temporary flare - SARA Reportable emissions - SO2 O. Temporary flare - SARA Reportable emissions - NOx Temporary flare - SARA Reportable emissions - NOx Temporary flare - SARA Reportable emissions - NOx O. Temporary flare - SARA Reportable emissions - NOx Temporary flare - SARA Reportable emissions - NOx O. W.W.T.P. SBC Offgas (H2S ppmv, 365-day rolling ave) W.W.T.P. Thermal Oxidizer, SBC Offgas (Temp Deg. F, 3-hr rolling ave) W.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp Deg. F, 3-hr rolling ave) W.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp Deg. F, 3-hr rolling ave) #3 SRU/SCOT SO2/O2 (Ipbw, 12-hr ave) #3 SRU/SCOT SO2/O2 (Ibbs/hr, 1-hr ave) #3 SRU/SCOT SO2/O2 (Ibbs/hr, 3-hr rolling ave) W.W.T.P. Phase 1 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) D. NP VEPR Phase 2 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) Boiler 7 NOX (Ib/MMBtu, 30 day rolling ave) Boiler 7 Nox (Ib/MMBtu, 3-hr rolling ave) Boiler 8 NOX (Ib/MMBtu, 3-hr rolling ave) Boiler 8 NOX (Ib/MMBtu, 3-hr rolling ave) Boiler 8 SO2 (Ib/Mmbtu, 3-hr rolling ave) Boiler 8 SO2 (Ib/Mmbtu, 3-hr average) Heater 8-B-1 (Ib SO2/hr, 3-hr average) Heater 8-B-1 (Ib SO2/mr, 3-hr average)		0.00%
Heaters 38-B-1, 38-B-2 (1b SO2/mmbtu, 3-hr rolling ave) Heaters 38-B-1, 38-B-2 PSA fuel gas flow meter Light oil loadrack VRU (TOC ppmw, 6-hr average) Light oil loadrack- Permanent VCU (Limit = Temp ≥215 deg F, 3-hr rolling ave) Refinery flare (presence of pilots) Refinery flare - SARA Reportable emissions - SO2 Refinery flare - SARA Reportable emissions - NOX Refinery flare - H2S (3-hour rolling average) Temporary flare - H2S (3-hour rolling average) Temporary flare - SARA Reportable emissions - NOX Refinery flare - SARA Reportable emissions - NOX Temporary flare - SARA Reportable emissions - NOX 0. Temporary flare - SARA Reportable emissions - NOX 0. W.W.T.P. SBC Offgas (H2S ppmw, 365-day rolling ave) 0. W.W.T.P. Thermal Oxidizer, SBC Offgas (Temp Deg. F, 3-hr rolling ave) 0. W.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp Deg. F, 3-hr rolling ave) 33 SRU/SCOT SO2/O2 (ppmw, 12-hr ave) 43 SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave) 43 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave) 0. W.W.T.P. Phase 1 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) 0. NP VEPR Phase 2 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) 0. DO NP VEPR Phase 2 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) 0. DO NP VEPR Phase 3 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) 0. DO NP VEPR Phase 3 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) 0. DO NP VEPR Phase 4 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) 0. DO NP VEPR Phase 5 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) 0. DO NP VEPR Phase 5 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) 0. DO NP VEPR Phase 6 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) 0. DO NP VEPR Phase 7 - Catalytic AB w/Heat Exchg (Temp, 3-hr	.00%	
Heaters 38-B-1, 38-B-2 PSA fuel gas flow meter Light oil loadrack VRU (TOC ppmw, 6-br average) Light oil loadrack Permanent VCU (Limit = Temp ≥215 deg F, 3-hr rolling ave) Refinery flare (presence of pilots) Refinery flare (presence of pilots) Refinery flare - SARA Reportable emissions - SO2 Refinery flare - SARA Reportable emissions - NOx Refinery flare - H2S (3-hour rolling average) Temporary flare - H2S (3-hour rolling average) Temporary flare - SARA Reportable emissions - SO2 Refinery flare - H2S (3-hour rolling average) Temporary flare - SARA Reportable emissions - SO2 Refinery flare - SARA Reportable emissions - NOx Temporary flare - SARA Reportable emissions - NOx Refinery flare - H2S (3-hour rolling average) M.W.T.P. SBC Offgas (H2S ppmw, 365-day rolling ave) M.W.T.P. Thermal Oxidizer, SBC Offgas (Temp Deg. F, 3-hr rolling ave) M.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp Deg. F, 3-hr rolling ave) M.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp Deg. F, 3-hr rolling ave) M.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp Deg. F, 3-hr rolling ave) M.W.T.P. SOZ/OZ (ppmw, 12-hr ave) M.W.T.P. SOZ/OZ (lbs/hr, 1-hr ave) M.W.T.P. SOZ/OZ (lbs/hr, 3-hr rolling ave) M.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp Deg. F, 3-hr rolling ave) M.W.T.P. SOZ/OZ (lbs/hr, 3-hr rolling ave) M.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp, 3-hr rolling ave) M.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp, 3-hr rolling ave) M.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp, 3-hr rolling ave) M.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp, 3-hr rolling ave) M.W.T.P. Thermal Oxidizer, NESHAP Oxidian ave) M.W.T.P. Thermal Oxidizer,	.00%	
Light oil loadrack VRU (TOC ppmv, 6-hr average) Light oil loadrack- Permanent VCU (Limit = Temp ≥215 deg F, 3-hr rolling ave) Refinery flare (presence of pilots) Refinery flare - SARA Reportable emissions - SO2 Refinery flare - SARA Reportable emissions - NOx Refinery flare - SARA Reportable emissions - NOx Refinery flare - H2S (3-hour rolling average) Temporary flare (presence of pilots) Temporary flare - SARA Reportable emissions - SO2 Temporary flare - SARA Reportable emissions - SO2 Temporary flare - SARA Reportable emissions - NOx O. Temporary flare - SARA Reportable emissions - NOx O. Temporary flare - SARA Reportable emissions - NOx O. Temporary flare - H2S (3-hour rolling average) U. W. W. T. P. SBC Offgas (H2S ppmv, 365-day rolling ave) W. W. T. P. Thermal Oxidizer, SBC Offgas (Temp Deg. F, 3-hr rolling ave) W. W. T. P. Thermal Oxidizer, NESHAP Offgas (Temp Deg. F, 3-hr rolling ave) #3 SRU/SCOT SO2/O2 (ppmv, 12-hr ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave) W. W. T. P. Thermal Oxidizer, SBC Memp Deg. F, 3-hr rolling ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave) #4 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave) D. #5 SRU/SCOT SO2/O2 (lbs/hmbtu, 3-hr rolling ave) Boiler 7 NOX (lb/MMBtu, 30 day rolling ave) Boiler 8 NOX (lb/MMBtu, 3-hr rolling ave) Boiler 8 fuel gas flow meter Heater 8-B-1 (lb SO2/hm, 3-hr average) Heater 8-B-1 (ppmvd, 30-day average) Heater 8-B-1 (ppmvd, 30-day average) Heater 8-B-1 fuel gas flow meter GP 032 CO (TPY, Combined 12-month Rolling Sum)		0.00%
Light oil loadrack- Permanent VCU (Limit = Temp ≥215 deg F, 3-hr rolling ave) Refinery flare (presence of pilots) Refinery flare - SARA Reportable emissions - SO2 O. Refinery flare - SARA Reportable emissions - NOX Refinery flare - SARA Reportable emissions - NOX Refinery flare - H2S (3-hour rolling average) 1. Temporary flare (presence of pilots) Temporary flare - SARA Reportable emissions - SO2 O. Temporary flare - SARA Reportable emissions - NOX Temporary flare - H2S (3-hour rolling average) N.W.T.P. SBC Offgas (H2S ppmv, 365-day rolling ave) N.W.T.P. Thermal Oxidizer, SBC Offgas (Temp Deg. F, 3-hr rolling ave) N.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp Deg. F, 3-hr rolling ave) #3 SRU/SCOT SO2/O2 (ppmv, 12-hr ave) #3 SRU/SCOT SO2/O2 (pbmv, 12-hr ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave) #3 SRU/SCOT Bypasses O. NP VEPR Phase 1 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) Boiler 7 NOX (lb/MMBtu, 3-hr rolling ave) Boiler 7 NOX (lb/MMBtu, 3-hr rolling ave) Boiler 7 fuel gas flow meter Boiler 8 NOX (lb/MMBtu, 3-hr rolling ave) Boiler 8 fuel gas flow meter Heater 8-B-1 (lb SO2/mnbtu, 3-hr average) Heater 8-B-1 (lb SO2/mbtu, 3-hr average)		0.00%
Refinery flare (presence of pilots) Refinery flare - SARA Reportable emissions - SO2 Refinery flare - SARA Reportable emissions - NOX Refinery flare - H2S (3-hour rolling average) Temporary flare (presence of pilots) Temporary flare - SARA Reportable emissions - SO2 Temporary flare - SARA Reportable emissions - SO2 Temporary flare - SARA Reportable emissions - NOX Temporary flare - H2S (3-hour rolling average) N.W.T.P. SBC Offgas (H2S ppmv, 365-day rolling ave) W.W.T.P. SBC Offgas (H2S ppmv, 365-day rolling ave) W.W.T.P. Thermal Oxidizer, SBC Offgas (Temp Deg. F, 3-hr rolling ave) M.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp Deg. F, 3-hr rolling ave) #3 SRU/SCOT SO2/O2 (ppmv, 12-hr ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave) #3 SRU/SCOT Bypasses O. NP VEPR Phase 1 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) #3 SRU/SCOT Bypasses O. NP VEPR Phase 2 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) #3 SOU (1b/MMBtu, 3-hr rolling ave) #3 SOU (1b/MMBtu, 3-hr rolling ave) #4 Boiler 7 NOX (1b/MMBtu, 3-hr rolling ave) #5 Boiler 8 Fuel gas flow meter #6 Heater 8-B-1 (1b SO2/mbtu, 3-hr average)	.00%	0.00%
Refinery flare - SARA Reportable emissions - SO2 0. Refinery flare - SARA Reportable emissions - NOX 0. Refinery flare - H2S (3-hour rolling average) 1. Temporary flare (presence of pilote) - Temporary flare - SARA Reportable emissions - SO2 0. Temporary flare - SARA Reportable emissions - SO2 0. Temporary flare - SARA Reportable emissions - NOX 0. Temporary flare - H2S (3-hour rolling average) 1. W.W.T.P. SEC Offgas (H2S ppmv, 365-day rolling ave) 0. W.W.T.P. Thermal Oxidizer, SEC Offgas (Temp Deg. F, 3-hr rolling ave) 0. #3 SRU/SCOT SO2/O2 (ppmv, 12-hr ave) 0. #3 SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave) 0. #3 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave) 0. #3 SRU/SCOT Bypasses 0. NP VEPR Phase 1 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) 0. Boiler 7 NOX (lb/MMBtu, 3-hr rolling ave) 0. Boiler 7 SO2 (lb/MMBtu, 3-hr rolling ave) 0. Boiler 8 SO2 (lb/MMBtu, 3-hr rolling ave) 0. Boiler 8 NOX (lb/MMBtu, 3-hr rolling ave) 0. Boiler 8 NOX (lb/MMBtu, 3-hr rolling ave) 0. Boiler 8 SO2 (lb/MMBtu, 3-hr rolling ave) 0. Boiler 8 Hull gas flow meter 0. Heater 8-B-1 (lb SO2/mnbtu, 3-hr average) 0. Heater 8-B-1 (lb SO2/mr, 3-hr average) 0. Heater 8-B-1 (ppmvd, 30-day average) 0.	1.00%	0.00%
Refinery flare - SARA Reportable emissions - NOX Refinery flare - H2S (3-hour rolling average) Temporary flare (presence of pilots) Temporary flare - SARA Reportable emissions - SO2 Temporary flare - SARA Reportable emissions - SO2 Temporary flare - SARA Reportable emissions - NOX Temporary flare - H2S (3-hour rolling average) W.W.T.P. SBC Offgas (H2S ppmv, 365-day rolling ave) W.W.T.P. Thermal Oxidizer, SBC Offgas (Temp Deg. F, 3-hr rolling ave) W.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp Deg. F, 3-hr rolling ave) #3 SRU/SCOT SO2/O2 (ppmv, 12-hr ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave) #4 SPP Phase 1 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) #5 Deiler 7 NOX (lb/MMBtu, 30 day rolling ave) #5 Boiler 7 NOX (lb/MMBtu, 3-hr rolling ave) #5 Boiler 8 Heel gas flow meter #6 Heater 8-B-1 (lb SO2/hr, 3-hr average) #6 Heater 8-B-1 (lb SO2/hr, 3-hr average) #6 Heater 8-B-1 (lppmvd, 30-day average) #6 Heater 8-B-1 (ppmvd, 30-day average) #6 Heater 8-B-1 (ppmvd, 30-day average) #6 Heater 8-B-1 (fpmvd, 30-day average)		0.00%
Refinery flare - H2S (3-hour rolling average) 1. Temporary flare (presence of pilots) Temporary flare - SARA Reportable emissions - SO2 0. Temporary flare - SARA Reportable emissions - NOX 0. Temporary flare - H2S (3-hour rolling average) W.W.T.P. SBC Offgas (H2S ppmv, 365-day rolling ave) W.W.T.P. Thermal Oxidizer, SBC Offgas (Temp Deg. F, 3-hr rolling ave) W.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp Deg. F, 3-hr rolling ave) 3. SRU/SCOT SO2/O2 (ppmv, 12-hr ave) 3. SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave) 3.3 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave) 4.3 SRU/SCOT Bypasses 0. NP VEPR Phase 1 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) 0. WP VEPR Phase 2 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) 0. Deoiler 7 NOX (lb/MMBtu, 30 day rolling ave) 0. Deoiler 7 fuel gas flow meter Boiler 8 NOX (lb/MMBtu, 3-hr rolling ave) 0. Deoiler 8 flow (lb/MMBtu, 3-hr rolling ave) 0. Deoiler 8 fuel gas flow meter Heater 8-B-1 (lb SO2/hr, 3-hr average) Heater 8-B-1 (lb SO2/hr, 3-hr average) Heater 8-B-1 (lp gpmvd, 30-day average) Heater 8-B-1 (ppmvd, 30-day average)	1.00%	5.03%
Temporary flare (presence of pilots) Temporary flare - SARA Reportable emissions - SO2 Temporary flare - SARA Reportable emissions - NOX Temporary flare - H2S (3-hour rolling average) N.W.T.P. SBC Offgas (H2S ppmv, 365-day rolling ave) W.W.T.P. SBC Offgas (H2S ppmv, 365-day rolling ave) W.W.T.P. Thermal Oxidizer, SBC Offgas (Temp Deg. F, 3-hr rolling ave) N.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp Deg. F, 3-hr rolling ave) #3 SRU/SCOT SO2/O2 (ppmv, 12-hr ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave) #4 SRU/SCOT Bypasses D. NP VEPR Phase 1 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) #5 SO2 (lb/MMBtu, 30 day rolling ave) #5 Boiler 7 NOX (lb/MMBtu, 3-hr rolling ave) #5 Boiler 8 NOX (lb/MMBtu, 3-hr rolling ave) #5 Boiler 8 SO2 (lb/MMBtu, 3-hr rolling ave) #5 Boiler 8 SO2 (lb/MMBtu, 3-hr rolling ave) #5 Boiler 8 SO2 (lb/MMBtu, 3-hr rolling ave) #5 Boiler 8 Fuel gas flow meter #6 Heater 8-B-1 (lb SO2/mbtu, 3-hr average) #6 Heater 8-B-1 (lb SO2/mbtu, 3-hr average) #6 Heater 8-B-1 (lpmvd, 30-day average) #6 Heater 8-B-1 fuel gas flow meter #6 O 032 CO (TPY, Combined 12-month Rolling Sum) **O D D D D D D D D D D D D D D D D D D	29%	0.05%
Temporary flare - SARA Reportable emissions - SO2 Temporary flare - SARA Reportable emissions - NOX Temporary flare - H2S (3-hour rolling average) W.W.T.P. SBC Offgas (H2S ppmv, 365-day rolling ave) W.W.T.P. Thermal Oxidizer, SBC Offgas (Temp Deg. F, 3-hr rolling ave) W.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp Deg. F, 3-hr rolling ave) 3 SRU/SCOT SO2/O2 (ppmv, 12-hr ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave) 0.#3 SRU/SCOT Bypasses 0.NP VEPR Phase 1 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) NP VEPR Phase 2 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) Boiler 7 NOX (lb/MMBtu, 30 day rolling ave) Boiler 7 SO2 (lb/MMBtu, 3-hr rolling ave) Boiler 8 NOX (lb/MMBtu, 30 day rolling ave) Boiler 8 NOX (lb/MMBtu, 3-hr rolling ave) Boiler 8 Fuel gas flow meter Heater 8 -B -1 (lb SO2/mmbtu, 3-hr average) Heater 8 -B -1 (lb SO2/hr, 3-hr average) Heater 8 -B -1 (upmvd, 30-day average) Heater 8 -B -1 (upmvd, 30-day average) Heater 8 -B -1 fuel gas flow meter GP 032 CO (TPY, Combined 12-month Rolling Sum) 0.		0.18%
Temporary flare - SARA Reportable emissions - NOX Temporary flare - H2S (3-hour rolling average) W.W.T.P. SEC Offgas (H2S ppmv, 365-day rolling ave) W.W.T.P. Thermal Oxidizer, SEC Offgas (Temp Deg. F, 3-hr rolling ave) W.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp Deg. F, 3-hr rolling ave) 3. SRU/SCOT SO2/O2 (ppmv, 12-hr ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave) #3 SRU/SCOT Bypasses ONP VEPR Phase 1 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) Boiler 7 NOX (lb/MMBtu, 30 day rolling ave) Boiler 7 SO2 (lb/MMBtu, 3-hr rolling ave) Boiler 7 Fuel gas flow meter Boiler 8 NOX (lb/MMBtu, 3-hr rolling ave) Boiler 8 SO2 (lb/MMBtu, 3-hr rolling ave) Boiler 8 SO2 (lb/MMBtu, 3-hr rolling ave) Boiler 8 Fuel gas flow meter Heater 8-B-1 (lb SO2/mrbtu, 3-hr average) Heater 8-B-1 (lb SO2/hr, 3-hr average) Heater 8-B-1 (ppmvd, 30-day average) Heater 8-B-1 fuel gas flow meter GP 032 CO (TPY, Combined 12-month Rolling Sum) O. D.	0.00%	15.93%
W.W.T.P. SBC Offgas (H2S ppmv, 365-day rolling ave) W.W.T.P. Thermal Oxidizer, SBC Offgas (Temp Deg. F, 3-hr rolling ave) W.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp Deg. F, 3-hr rolling ave) #3 SRU/SCOT SO2/O2 (ppmv, 12-hr ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave) #3 SRU/SCOT Bypasses O. #4 SPU/SCOT Bypasses O. #5 PVEPR Phase 1 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) #6 Solier 7 NOX (lb/MMBtu, 30 day rolling ave) #6 Solier 7 SO2 (lb/MMBtu, 3-hr rolling ave) #6 Solier 7 fuel gas flow meter #7 Boiler 8 NOX (lb/MMBtu, 3 oday rolling ave) #7 Boiler 8 NOX (lb/MMBtu, 3-hr rolling ave) #7 Boiler 8 Fuel gas flow meter #7 Heater 8-B-1 (lb SO2/mmbtu, 3-hr average) #7 Heater 8-B-1 (lb SO2/mmbtu, 3-hr average) #8 Heater 8-B-1 (ppmvd, 30-day average) #8 Heater 8-B-1 fuel gas flow meter #8 GP 032 CO (TFY, Combined 12-month Rolling Sum) O D O D O D O D O D O D O D O	0.00%	
W.W.T.P. Thermal Oxidizer, SBC Offgas (Temp Deg. F, 3-hr rolling ave) W.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp Deg. F, 3-hr rolling ave) #3 SRU/SCOT SO2/O2 (ppmv, 12-hr ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave) #3 SRU/SCOT Bypasses O. NP VEPR Phase 1 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) NP VEPR Phase 2 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) Boiler 7 NOX (lb/MMBtu, 30 day rolling ave) Boiler 7 SO2 (lb/MMbtu, 3-hr rolling ave) Boiler 8 NOX (lb/MMbtu, 3-hr rolling ave) Boiler 8 NOX (lb/MMbtu, 3-hr rolling ave) Boiler 8 SO2 (lb/MMbtu, 3-hr rolling ave) Boiler 8 Fuel gas flow meter Heater 8-B-1 (lb SO2/mmbtu, 3-hr average) Heater 8-B-1 (lb SO2/hr, 3-hr average) Heater 8-B-1 (ppmvd, 30-day average) Heater 8-B-1 fuel gas flow meter GP 032 CO (TPY, Combined 12-month Rolling Sum)	77%	15.93%
W.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp Deg. F, 3-hr rolling ave) #3 SRU/SCOT SO2/O2 (ppmv, 12-hr ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave) #3 SRU/SCOT Bypasses Oxider Phase 1 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) NP VEPR Phase 2 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) Boiler 7 NOX (lb/MMBtu, 30 day rolling ave) Boiler 7 SO2 (lb/MMBtu, 3-hr rolling ave) Boiler 7 fuel gas flow meter Boiler 8 NOX (lb/MMBtu, 3-hr rolling ave) Boiler 8 SO2 (lb/MMBtu, 3-hr rolling ave) Boiler 8 fuel gas flow meter Heater 8-B-1 (lb SO2/mmbtu, 3-hr average) Heater 8-B-1 (ppmvd, 30-day average) Heater 8-B-1 (ppmvd, 30-day average) Heater 8-B-1 fuel gas flow meter GP 032 CO (TPY, Combined 12-month Rolling Sum)	0.00%	0.27%
#3 SRU/SCOT SO2/O2 (ppmv, 12-hr ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave) #3 SRU/SCOT Bypasses NP VEPR Phase 1 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) NP VEPR Phase 2 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) Boiler 7 NOX (lb/MMBtu, 30 day rolling ave) Boiler 7 SO2 (lb/MMBtu, 3-hr rolling ave) Boiler 7 fuel gas flow meter Boiler 8 NOX (lb/MMBtu, 3 day rolling ave) Boiler 8 SO2 (lb/MMBtu, 3-hr rolling ave) Boiler 8 Fuel gas flow meter Heater 8-B-1 (lb SO2/mmbtu, 3-hr average) Heater 8-B-1 (lb SO2/hr, 3-hr average) Heater 8-B-1 (ppmvd, 30-day average) Heater 8-B-1 fuel gas flow meter GP 032 CO (TPY, Combined 12-month Rolling Sum) 0	0.00%	0.00%
#3 SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave) #3 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave) #3 SRU/SCOT Bypasses ONP VEPR Phase 1 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) NP VEPR Phase 2 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) Boiler 7 NOX (lb/MMBtu, 30 day rolling ave) Boiler 7 SO2 (lb/MMBtu, 3-hr rolling ave) Boiler 7 fuel gas flow meter Boiler 8 NOX (lb/MMBtu, 30 day rolling ave) Boiler 8 SO2 (lb/MMBtu, 3-hr rolling ave) Boiler 8 Fuel gas flow meter Heater 8-B-1 (lb SO2/mmbtu, 3-hr average) Heater 8-B-1 (lb SO2/hr, 3-hr average) Heater 8-B-1 (ppmvd, 30-day average) Heater 8-B-1 fuel gas flow meter GP 032 CO (TPY, Combined 12-month Rolling Sum) One	0.00%	0.00%
#3 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave) 0. #3 SRU/SCOT Bypasses 0. NP VEPR Phase 1 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) 0. NP VEPR Phase 2 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) 0. Boiler 7 NOX (lb/MMBtu, 30 day rolling ave) 0. Boiler 7 SO2 (lb/MMBtu, 3-hr rolling ave) 0. Boiler 7 fuel gas flow meter Boiler 8 NOX (lb/MMBtu, 30 day rolling ave) 0. Boiler 8 SO2 (lb/MMBtu, 3-hr rolling ave) 0. Boiler 8 SO2 (lb/MMBtu, 3-hr rolling ave) 0. Boiler 8 Fuel gas flow meter Heater 8-B-1 (lb SO2/mmbtu, 3-hr average) 0. Heater 8-B-1 (lb SO2/hr, 3-hr average) 0. Heater 8-B-1 (ppmvd, 30-day average) 0. Heater 8-B-1 fuel gas flow meter GP 032 CO (TPY, Combined 12-month Rolling Sum) 0.	0.00%	0.55%
#3 SRU/SCOT Bypasses 0. NP VEPR Phase 1 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) 0. NP VEPR Phase 2 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) 0. Boiler 7 NOx (lb/MMBtu, 30 day rolling ave) 0. Boiler 7 SO2 (lb/MMBtu, 3-hr rolling ave) 0. Boiler 7 fuel gas flow meter Boiler 8 NOx (lb/MMBtu, 30 day rolling ave) 0. Boiler 8 SO2 (lb/MMBtu, 3-hr rolling ave) 0. Boiler 8 SO2 (lb/MMBtu, 3-hr rolling ave) 0. Boiler 8 Fuel gas flow meter Heater 8-B-1 (lb SO2/mmbtu, 3-hr average) 0. Heater 8-B-1 (lb SO2/hr, 3-hr average) 0. Heater 8-B-1 (ppmvd, 30-day average) 0. Heater 8-B-1 fuel gas flow meter GP 032 CO (TPY, Combined 12-month Rolling Sum) 0.).00%).00%	0.55% 0.55%
NP VEPR Phase 1 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) NP VEPR Phase 2 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) Boiler 7 NOx (lb/MMBtu, 30 day rolling ave) Boiler 7 SO2 (lb/MMBtu, 3-hr rolling ave) Boiler 8 NOx (lb/MMBtu, 30 day rolling ave) Boiler 8 SO2 (lb/MMBtu, 3-hr rolling ave) Boiler 8 SO2 (lb/MMBtu, 3-hr rolling ave) Boiler 8 fuel gas flow meter Heater 8-B-1 (lb SO2/mmbtu, 3-hr average) Heater 8-B-1 (lb SO2/hr, 3-hr average) Heater 8-B-1 (ppmvd, 30-day average) Heater 8-B-1 fuel gas flow meter GP 032 CO (TPY, Combined 12-month Rolling Sum) O	0.00%	0.55%
NP VEPR Phase 2 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave) 0. Boiler 7 NOx (lb/MMBtu, 30 day rolling ave) 0. Boiler 7 SO2 (lb/MMBtu, 3-hr rolling ave) 0. Boiler 8 NOx (lb/MMBtu, 30 day rolling ave) 0. Boiler 8 SO2 (lb/MMBtu, 3-hr rolling ave) 0. Boiler 8 fuel gas flow meter 0. Heater 8-B-1 (lb SO2/mmbtu, 3-hr average) 0. Heater 8-B-1 (lb SO2/hr, 3-hr average) 0. Heater 8-B-1 (ppmvd, 30-day average) 0. Heater 8-B-1 fuel gas flow meter 0. GP 032 CO (TPY, Combined 12-month Rolling Sum) 0.	0.00%	0.00%
Boiler 7 SO2 (1b/MMBtu, 3-hr rolling ave) 0. Boiler 7 fuel gas flow meter Boiler 8 NOx (1b/MMBtu, 30 day rolling ave) 0. Boiler 8 SO2 (1b/MMBtu, 3-hr rolling ave) 0. Boiler 8 fuel gas flow meter Heater 8-B-1 (1b SO2/mmbtu, 3-hr average) 0. Heater 8-B-1 (1b SO2/hr, 3-hr average) 0. Heater 8-B-1 (ppmvd, 30-day average) 0. Heater 8-B-1 fuel gas flow meter GP 032 CO (TPY, Combined 12-month Rolling Sum) 0.	0.00%	0.00%
Boiler 7 fuel gas flow meter Boiler 8 NOX (lb/MMBtu, 30 day rolling ave) Boiler 8 SO2 (lb/MMBtu, 3-hr rolling ave) Boiler 8 fuel gas flow meter Heater 8-B-1 (lb SO2/mmbtu, 3-hr average) Heater 8-B-1 (lb SO2/hr, 3-hr average) Heater 8-B-1 (ppmvd, 30-day average) Heater 8-B-1 fuel gas flow meter GP 032 CO (TPY, Combined 12-month Rolling Sum) 0 0	0.00%	2.33%
Boiler 8 NOx (lb/MMBtu, 30 day rolling ave) 0.).00%	
Boiler 8 SO2 (lb/MMBtu, 3-hr rolling ave) 0 Boiler 8 fuel gas flow meter 8-B-1 (lb SO2/mmbtu, 3-hr average) Heater 8-B-1 (lb SO2/hr, 3-hr average) 0 Heater 8-B-1 (ppmvd, 30-day average) 0 Heater 8-B-1 fuel gas flow meter 0 GP 032 CO (TPY, Combined 12-month Rolling Sum) 0		1.59%
Boiler 8 fuel gas flow meter Heater 8-B-1 (1b SO2/mmbtu, 3-hr average) 0 Heater 8-B-1 (1b SO2/hr, 3-hr average) 0 Heater 8-B-1 (ppmvd, 30-day average) 0 Heater 8-B-1 fuel gas flow meter 0 GP 032 CO (TPY, Combined 12-month Rolling Sum) 0	0.00%	2.28%
Heater 8-B-1 (1b SO2/mmbtu, 3-hr average) 0 Heater 8-B-1 (1b SO2/hr, 3-hr average) 0 Heater 8-B-1 (ppmvd, 30-day average) 0 Heater 8-B-1 fuel gas flow meter 0 GP 032 CO (TPY, Combined 12-month Rolling Sum) 0	0.00%	
Heater 8-B-1 (lb SO2/hr, 3-hr average) Heater 8-B-1 (ppmvd, 30-day average) Heater 8-B-1 fuel gas flow meter GP 032 CO (TPY, Combined 12-month Rolling Sum) 0	0.00%	1.55%
Heater 8-B-1 (ppmvd, 30-day average) 0. Heater 8-B-1 fuel gas flow meter	0.00%	
Heater 8-B-1 fuel gas flow meter GP 032 CO (TPY, Combined 12-month Rolling Sum) 0	0.00%	0.10%
GP 032 CO (TPY, Combined 12-month Rolling Sum) 0.		0.00%
).00%	
Boiler 7 CO (TPY, Combined 12-month Rolling Sum w/ Boiler 8)		2.33%
Boiler 8 CO (TPY, Combined 12-month Rolling Sum w/ Boiler 7)		2.28%
	0.00%	
Botter Note (111) Committee 12 movest Reliarly Com 17 Bellet C7		2.33%
Boiler 8 NOx (TPY, Combined 12-month Rolling Sum w/ Boiler 7)		2.28%

4th Quarter 2018 - Percent Excess Emissions and CEM Downtime Summary				
	Excess Emission Percent	Continuous Monitor		
	Time Exceeded This	Downtime Percent This		
Source Description	Quarter (1)	Quarter (2,3)		
Refinery Fuel Gas Drum (H2S ppmv, 3-hr rolling ave)	0.00%	2.05%		
Refinery Fuel Gas Drum (H2S ppmv, 365-day rolling ave) Heater 28-B-1 (lb SO2/mmbtu, 3 hr average)	0.00%	2.05%		
Heater 28-B-1 (1b SO2/mmbtu, 3 nr average) Heater 28-B-1 (1b SO2/hr, 3 hr average)	0.00%			
Heater 28-B-1 fuel gas flow meter	0.00%	0.00%		
FCC Opacity (30%, 6-min average)	0.01%	0.55%		
FCC Opacity (20%, 3-hr average)	1.61%	0.55%		
FCC CO (ppm)	2.28%	0.21%		
FCC NOx (ppm - 365 day rolling average)	0.00%	0.21%		
FCC NOx (ppm - 7 day rolling average)	0.00%	0.21%		
FCC SO2 (ppm - 7 day rolling average)	0.00%	0.21%		
FCC SO2 (ppm - 365 day rolling average) FCC SO2 (lb/hr)	0.00%	0.21%		
FCC SOx (1b/1000 lb coke burn)	0.00%	0.21%		
Heater 5-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	0.21%		
Heater 5-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%			
Heater 5-B-1 fuel gas flow meter		0.00%		
Heater 2-B-3 (lbs SO2/hr, 3-hr rolling ave)	0.00%	0.00%		
Heater 2-B-3 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%			
Heater 2-B-3 (lbs NOx/mmbtu, 3-hr rolling ave)	0.00%	0.21%		
Heater 2-B-3 (lbs NOx/mmbtu, 12-Month rolling ave)	0.00%	0.21%		
Heater 2-B-3 NSP fuel gas flow meter		0.00%		
Heater 2-B-3 Fuel Gas flow meter		0.00%		
Heater 2-B-3 NOX/O2 CEM Heater 1-B-5 (lbs SO2/hr, 3-hr rolling ave)	0.00%	0.21%		
Heater 1-B-5 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%			
Heater 1-B-5 fuel gas flow meter		0.00%		
Heater 1-B-7 (lbs SO2/hr, 3-hr rolling ave)	0.00%			
Heater 1-B-7 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%			
Heater 1-B-7 fuel gas flow meter		0.00%		
Heater 29-B-1/29-B-2 (lbs SO2/hr, 3-hr rolling ave)	0.00%			
Heater 29-B-1/29-B-2 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%			
Heater 29-B-1/29-B-2 fuel gas flow meter		0.00%		
Heater 3-B-1/2/3 (lbs SO2/hr, 3-hr rolling ave) Heater 3-B-1/2/3 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%			
Heater 3-B-1/2/3 fuel gas flow meter	0.00%	0.00%		
Heater 3-B-4 (lbs SO2/hr, 3-hr rolling ave)	0.00%			
Heater 3-B-4 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%			
Heater 3-B-4 fuel gas flow meter		0.00%		
Heater 3-B-7 (lbs SO2/hr, 3-hr rolling ave)	0.00%			
Heater 3-B-7 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%			
Heater 3-B-7 fuel gas flow meter		0.00%		
Heater 3-B-8 (lbs SO2/hr, 3-hr rolling ave)	0.00%	N 40		
Heater 3-B-8 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%			
Heater 3-B-8 fuel gas flow meter Heater 34-B-1 (lbs SO2/hr, 3-hr rolling ave)		0.00%		
Heater 34-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%			
Heater 34-B-1 fuel gas flow meter		0.31%		
Heater 34-B-2 (lbs SO2/hr, 3-hr rolling ave)	0.00%			
Heater 34-B-2 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%			
Heater 34-B-2 fuel gas flow meter		0.00%		
Heater 34-B-2 fuel gas flow meter		0.00%		
Heater 32-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%			
Heater 32-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%			
Heater 32-B-1 fuel gas flow meter Heater 32-B-1 (NOx lb/mmbtu, 365 day rolling ave)	0.00%	0.31%		
Heater 10-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	0.31%		
Heater 10-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%			
Heater 10-B-1 fuel gas flow meter		0.00%		

4th Quarter 2018 - Percent Excess Emissions and CEM Downtime Summary					
Source Description	Excess Emission Percent Time Exceeded This Quarter (1)	Continuous Monitor Downtime Percent This Quarter (2,3)			
(2) Monitor Downtime includes daily calibration checks for opacity.					
(3) 0.00% indicates No Monitor Downtime.					

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one):	SO2 Other:	NOx	со	CO2	O2	TRS	H2S	HCL	Opacity	
REPORTING QUARTER:	Fourth, 2018			=	MONITOR MODEL:	Vista :	2020 GC			_
FACILITY: St. Paul Park Re:	fining Co. LLC			-	MFR:	Combust	tion Engin	eering	,,,, ,	_
EMISSION SUBJECT ITEM:	COMG7			- -	EMISSION	162 ppr	ID AVERAGIN m H2S - 3 H2S - 365	hr rolli		_
EMISSION UNIT(S):	Refinery fuel ga	s system		-	EMISSION	BASIS:	40 CFR 60 NSPS Subj			_
ASSOCIATED ITEMS: EQUI19, EQUI10, EQUI20, I	EQUI1, EQUI3, EQ QUI11, EQUI12, EQU BQUI21, EQUI26, ,		, EQUI15,	EQUI	17, EQUI1		GQUI43, and	d EQUI44		_ _ _
NOTE: <u>H2S limits withing</u>	n 40 CFR 60 Subp.	Ja only app	ly to EQU	I42,	TOTAL OP	ERATING		215	<u> </u>	_
A. EMISSION DATA SUMMARY					B. CEM PE	RFORMAN	NCE SUMMA	RY		
1 DURATION OF EXCE. a) Startup/Shutdown b) Control equipment c) Process problems d) Other known causes e) Unknown causes f) Soot blowing g) Fuel problems 2 TOTAL DURATION (H 3 PERCENT OF TOTAL EXCESS EMISSIONS	RS)	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	365-day 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 S IN MINUTI	- - - - -		SOURCI a) Monito b) Non-n c) QA ca d) Other e) Unkno	known cause own causes DURATION (F NT OF TOTAL OWNTIME	N (HRS) n nction s HRS)	0.00 0.00 1.00 43.00 0.00 44.00	
% Total Excess Emissions = % Total CEM Downtime = NOTES:		Total Duration			-	perating Ti	ime - CEM Do	wntime)		
If no exceedances: I certify that the during the reporting period. I certify SUBMITTED BY:		he information	in this report	and th	at to the bes		owledge the in			exceedances

CONTINUOUS EMISSION MONITOR EXCESS EMISSION REPORT

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		Refinery fuel gas	system
POLLUTANT MONITORED:		H2S	
DATE/TIME	TOTAL DURATION (HRS)	MAX. CONC. (ppm, 3-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
h) Control aguinment			•
b) Control equipment 10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	_ NO excess emissions.	
rotei	0.00		
c) Process problems			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	_	
d) Other known causes			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	_ NO excess emissions.	
10001	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	_	
f) Soot blowing			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	_110 00000 011110010110.	
g) Fuel problems			
g) Fuel problems 10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	_110 0,0000 011110010113.	

CONTINUOUS EMISSION MONITOR EXCESS EMISSION REPORT

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		Refinery fuel gas sy	stem
POLLUTANT MONITORED:		H2S	
DATE/TIME	TOTAL DURATION (HRS)	MAX. CONC.	CAUSE/CORRECTIVE ACTION
	· · · · · · · · · · · · · · · · · · ·		
a) Startup/Shutdown 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00	_ No excess emissions.	
b) Control equipment 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00	-	
c) Process problems 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00	_	
d) Other known causes 10/1/2018 1/1/2019		_No excess emissions.	
Total	0.00		
e) Unknown causes 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00	_	
f) Soot blowing 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
g) Fuel problems 10/1/2018 1/1/2019		_No excess emissions.	
Total	0.00		

CONTINUOUS EMISSION MONITOR DOWNTIME REPORT

REPORTING QUARTER:		Fourth, 2018	AQDFILE# #0203 (AI ID 447)
EMISSION UNIT(S):		Refinery fuel gas system	
POLLUTANT MONITORED:		H2S	
	TOTAL DURATION		
DATE/TIME	(HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total	0.00	-	
b) Non-monitor malfunction			
Total	0.00	-	
c) QA calibration			
11/29/2018 11:00			
11/29/2018 12:00	1.00	_Quarterly audit	
Total	1.00		
d) Other known causes			
10/4/2018 11:00			
10/4/2018 13:00	2.00	Communications error	
10/5/2018 9:00			
10/5/2018 10:00	1.00	Communications error	
10/24/2018 9:00			
10/24/2018 15:00	6.00	Preventative maintenance	
11/27/2018 13:00	4.00	I be a set of the second second of	
11/27/2018 14:00	1.00	Linearity issues; testing	
11/27/2018 15:00 11/27/2018 17:00	2.00	Linearity issues; testing	
11/28/2018 17:00	2.00	Linearity issues, testing	
11/28/2018 11:00	1.00	Linearity issues; testing;	
11/28/2018 13:00	1.00	Emounty locator, todang,	
11/28/2018 15:00	2.00	Linearity issues; testing	
11/29/2018 8:00			
11/29/2018 10:00	2.00	Communications error	
12/18/2018 11:00			
12/18/2018 17:00	6.00	Linearity issues; testing	
12/19/2018 9:00			
12/19/2018 21:00	12.00	Linearity issues; testing	
12/20/2018 9:00			
12/20/2018 17:00	8.00	_Linearity issues; testing	
Total	43.00		
e) Unknown causes			

Total _____

0.00

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one):	POLLUTANT (circle one): SO2 N				O2	TRS	H2S	HCL	Opacity		
	Other:	Flow		-	MONITO	np.					
REPORTING QUARTER:	Fourth, 201	IΩ					Flow Ra	ate/FG H2S	CEM		
THE ORTHO COMMENT	rodren, zo			-	MFR:	ruer dub	, 110# RC	zcc/10 lizz	/ CHM		
FACILITY:											
St. Paul Park R	efining Co. L	LC	· · · · · · · · · · · · · · · · · · ·	_							
				_							
					EMISSI	ON LIMIT AN					
EMISSION SUBJECT ITEM:									colling avg.		
EQUI1				-		1.75 16	SO2/mm.bt	u - 3 hou	r rolling avg.		
EMISSION UNIT(S):	Alkylation										
Limoololi olii (o).	Heater 28-F	3 1		-	FMISSIO 1	ON BASIS:		SIP for S	SO2 NAAOS		
			-	-	EMISSION BASIS: SIP for SO2 NAAQS						
ASSOCIATED ITEMS:	COMG7, EQUI	[163, EQUI1	73, STRU47	7, COMG20							
NOTE: There was zero	fuel oil runt	ime during	the quarte	er.							
						<u> </u>					
					OPERA	TING HOUF	RS OF EMI	ISSION UNIT	f:		
								4000			
								1888	-		
A. EMISSION DATA SUMMA	RY				B. CEM	Performan	ce Summa	arv	•		
DURATION OF EXC					DOWNTIME	E DURING					
1		, , , ,	lb/hr	lb/mmbtu		SOURCE					
a) Startup/Shutdown			0.00	0.00				` ,	Fuel Gas		
b) Control equipment	t	•	0.00	0.00		a) Monitor	malfunctio	n	0.00		
c) Process problems		•	0.00	0.00	7	b) Non-mo	nitor malfu	nction	0.00		
d) Other known caus	es	•	0.00	0.00		c) QA calib	oration		0.00		
e) Unknown causes		•	0.00	0.00		d) Other kr	nown cause	es	0.00		
f) Soot blowing		•	0.00	0.00	1	e) Unknow	n causes		0.00		
g) Fuel problems		•	0.00	0.00	7						
2 TOTAL DURATION	(HRS)	•	0.00	0.00	7 2	TOTAL DU	JRATION (HRS)	0.00		
3 PERCENT OF TOTA	. ,	•			_	PERCENT		•			
EXCESS EMISSION	S		0.00%			CEM DOW	VNTIME		0.00%		
					1						
	FOR OPACIT	Y RECORD AL	LTIMES IN	MINITES E	OR GASI	S RECOR	D ALL TIM	MES IN HOU	RS		
	10110171011					-0,1120011		120 111 1100			
% Total Excess Emissions =		Total Duration	n of Excess E	Emissions / (T	otal Oper	ating Time -	CEM Dow	ntime)			
				,				,			
% Total CEM Downtime =		CEM Downtin	ne / Total Op	erating Time							
NOTES:											
If no exceedances: I certify th											
exceedances during the repor	• .	•				rτ and that t	to the best	or my knowle	eage the information is valid.		
SUBMITTED BY:	See certif:	ication page	e at front	of repor	t			DATE:			

EXCESS EMISSION REPORT

REPORTING QUARTER:		Fourth, 2018		AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		EQUI1	/m +/m	-
POLLUTANT MONITORED:		SO2 lb/hr		
DATE/TIME	TOTAL DURATION (HRS)	MAX. EMISSIONS RATE	CAUSE/CORRECTIVE ACTION	
a) Startup/Shutdown 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
b) Control equipment 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
c) Process problems 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
d) Other known causes 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
e) Unknown causes 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
f) Soot blowing 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
g) Fuel problems 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		

EXCESS EMISSION REPORT

EMISSION UNIT(S):		EQUI1		
POLLUTANT MONITORED:		SO2 lb/mmbtu		
	TOTAL DURATION			
DATE/TIME	(HRS)	MAX. EMISSIONS RATE	CAUSE/CORRECTIVE ACTION	
a) Startup/Shutdown 10/1/2018 1/1/2019		No excess emissions.		
Total	0.00	_110 00000 011110010110.		
b) Control equipment 10/1/2018 1/1/2019		No excess emissions.		
Total	0.00	_140 0,0033 01113310113.		
c) Process problems 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
d) Other known causes 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
e) Unknown causes 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
f) Soot blowing 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
g) Fuel problems 10/1/2018 1/1/2019	0.00	_No excess emissions.		

CONTINUOUS EMISSION MONITOR DOWNTIME REPORT

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)					
EMISSION UNIT(S):		Heater 28-B-1 (EQUI1)						
POLLUTANT MONITORED:		Fuel Gas Flow Rate						
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION						
a) Monitor malfunction								
Total	0.00	_						
b) Non-monitor malfunction								
Total	0.00	_						
c) QA calibration								
Total	0.00	-						
d) Other known causes								
Total	0.00	-						
e) Unknown causes								
Total	0.00	-						

MINNESOTA POLLUTION CONTROL AGENCY

AQDFILE#: #0203 (AT ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one):	SO2	SOX	NOx	co	CO2	02	TRS	H2S	HCL	(Opacity)
	Other:	Metal HAP pe	r MACT Subpart UUU							
					MONITOR					
REPORTING QUARTER:	Fourth, 2018	-			MODEL:	440				
					MFR:	Thermo	Electron	Corporation	on	
FACILITY:							_			_
St. Paul Park Refini	ing Co. LLC									
					EMISSION	LIMITS A	ND AVERA	GING TIME:		
EMISSION SUBJECT ITEM:	EQUI2					30% opa	city; ex	cept for or	ne six	_
						minute	period i	n any one l	hour (1)	
						20% opa	city/3-h	r Avg.		
EMISSION UNIT(S):	FCC regenerator				EMISSION	BASIS:				
						MN Rule	7011.14	05, subp. :	1, Item	В
						40 CFR	63.1564			
ASSOCIATED ITEMS:	EQUI164, TREA17									
PROCESS UNIT DESCRIPTION	N:	EQUI2 is app	roximately a 30,50	0 bpd fluidized cata	alytic crac	king un:	t.			
		The material	s from the FCC are	routed to the FCC	column for_	fraction	nation.			
					TOTAL OF	PERATING	HOURS			
					OF EMISS	ION UNIT		1937		
					_					
A. EMISSION DATA SUMMARY	Υ				B. CEM PI	ERFORMA	NCE SUM	MARY		
]								
1 DURATION OF EXCESS E	MISSIONS (6-MIN, 30% Limit)	1 DURA	TION OF EXCESS EMISS	SIONS (3-HR, 20% Limit)	1	DURATIO	N OF CEM	DOWNTIME (DURING	
a) Startup/Shutdown	0.00	a) Star	tup/Shutdown	0.00		SOURCE	OPERATIO	N (MIN)		
b) Control equipment	0.00	b) Con	trol equipment	0.00		a) Monitor	malfunctio	n _	0.00	
c) Process problems	0.00	c) Proc	ess problems	0.00		b) Non-me	onitor malfu	nction _	0.00	_ '
d) Other known causes	6.00	d) Othe	er known causes	31.00		c) QA cali	bration	_	642.00	
e) Unknown causes	0.00	e) Unk	nown causes	0.00		d) Other k	nown cause	es _	0.00	
f) Soot blowing	0.00	f) Soot	blowing	0.00		e) Unknov	vn causes	_	0.00	_
g) Fuel problems	0.00	g) Fuel	problems	0.00				_		
2 TOTAL DURATION (MIN)	6.00	2 TOTAL	DURATION (HR)	31.00	2	TOTAL D	URATION (MIN)	642.00	
3 PERCENT OF TOTAL		3 PERCE	NT OF TOTAL		3	PERCEN'	F OF TOTA	L		_
EXCESS EMISSIONS	0.01%	EXCES	S EMISSIONS	1.61%		CEM DOV	VNTIME	_	0.55%	_
										-
	FOR OPACITY, RECORD AL	L TIMES IN MINU	TES. FOR GASES, REC	ORD ALL TIMES IN HOUR	.s					
% Total Excess Emissions =		Total Duration of	Excess Emissions / (Tot	al Operating Time - CEM D	owntime)					
% Total CEM Downtime =		CEM Downtime /	Total Operating Time							
NO (1) According to MN	Rules 7011.1405, Subpt.	1, B and MAC	T II, an exceedance	e of this standard	occurs when	ever				
any one-hour period	contains two or more 6-	minute period	s during which the	average opacity ex	ceeds 30%.					
As allowed in the ab	pove noted regulation, i	if two or more	6-minute average	is exceeded in any	one hour, i	t is				
reported in the summ	mary at the front of thi	s report.								
									· ·	
	t the required analyses were mad n in this report and that to the be				dge there were	no excee	dances duri	ng the reportin	ng period.	I certify that
SUBMITTED BY:	See certification pag	, ,						DATE:		
										

CONTINUOUS EMISSION MONITOR EXCESS EMISSION REPORT

REPORTING QUARTER:		Fourth, 2018		AQD FILE # #0203 (AI ID 447)			
EMISSION UNIT(S):		FCC regenerator					
POLLUTANT MONITORED:		Opacity (20% 3-hr Limit)					
DATE/TIME	TOTAL DURATION (HR)	MAX. OPACITY (%)	CAUSE/CORRECTIVE ACTION				
a) Startup/Shutdown							
10/1/201							
1/1/201	9						
tot	aì 0	No excess emissions.					
tot	ai U	NO excess emissions.					
b) Control equipment							
10/1/201	8						
1/1/201	9						
tot	al 0	No excess emissions.					
c) Process problems							
10/1/201	8						
1/1/201	9						
tota	al 0	No excess emissions.					
d) Other known causes							
11/26/18 2:0	00						
11/27/18 9:0	0031	26	See the incident description in the re	port narrative.			
tota	al 31						
e) Unknown causes							
10/1/201							
1/1/201 tota		No excess emissions.					
toti	ai 0	NO excess chiasions.					
f) Soot blowing							
10/1/201	8						
1/1/201							
tot	al 0	No excess emissions.					
g) Fuel problems							
10/1/201	8						
1/1/201							
tota	al 0	No excess emissions.					

CONTINUOUS EMISSION MONITOR EXCESS EMISSION REPORT

REPORTING QUARTER:			Fourth	, 2018		AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(\$):			FCC re	generator		
POLLUTANT MONITO	ORED:		Opacit	У		
DATE/TIME		TOTAL DURATION (MIN)		MAX. OPACITY (%)	CAUSE/CORRECTIVE ACTION	
			# of 6 min	Max Opacity (%)		
a) Startup/Shutdown	10/1/2018 1/1/2019					
	total	0	0	No excess emissions.		
b) Control equipment	10/1/2018 1/1/2019					
	total	0	0	No excess emissions.		
c) Process problems	10/1/2018 1/1/2019					
	total	0	0	No excess emissions.		
d) Other known cause	s 17/18 19:30					
	17/18 19:36 _	6	40.7	See the incident descri	ption in the report narrative.	
e) Unknown causes	total	6				
	10/1/2018 1/1/2019			_		
	total	0	0	No excess emissions.		
f) Soot blowing	10/1/2018					
	1/1/2019			_		
	total	0	0	No excess emissions.		
g) Fuel problems	10/1/2018					
	1/1/2019					
	total	0	0	No excess emissions.		

CONTINUOUS EMISSION MONITOR DOWNTIME REPORT

REPORTING QUARTER:		Fourth, 2018	AQD FILE# #0203 (AI ID 447)
EMISSION UNIT(S):		FCC regenerator	
POLLUTANT MONITORED:		Opacity	
DATE/TIME	TOTAL DURATION (MIN)	CAUSE/CORRECTIVE ACTION	
a) Monitor matfunction			
Total	0.00		
b) Non-monitor malfunction			
Total	0.00	-	
c) QA calibration			
10/1/2018 12/31/2018	558.00	Daily calibrations	
10/29/18 13:42		·	
10/29/18 15:06	84.00	Quarterly audit	
Total	642.00	-	
d) Other known causes			
Total	0.00		
e) Unknown causes			
-		-	
Total	0.00		

MINNESOTA POLLUTION CONTROL AGENCY

AQDFiLE#: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one):	SO2	SOX	NOx C	co	CO2	02	TRS	H2S	HCL	Opacity		
	Other:	Organic	HAP per MAC	T Subpa	rt VVV							
				-	MONITOR							
REPORTING QUARTER:	Fourth, 20	018			MODEL:	Advance	Optima (U	ras 14) Gas	Analyzer			
FACILITY:					MFR:	ABB						
St. Paul Park Refining	Co. LLC											
CANODION OUR IFOT ITEM					EMISSION L		VERAGE TIN					
EMISSION SUBJECT ITEM:	EQUI2		·			500 ppmv	rd - 1 hou:	r average	•			
EMISSION UNIT(S):	FCC regene	erator			EMISSION E	BASIS:						
					NSPS Subpart J - 40 CFR 60.103(a)							
							3.1565(a)					
ASSOCIATED ITEMS:	EQUI164, T	TREA17				40 CFR 6	3, MACT S	ubpart UUU,	Table 8, Option	on 2		
PROCESS UNIT DESCRIPTION:		EQUI2 is	a fluidize	d catal	ytic crac	king unit						
		The mate	rials from	the FCC	are rout	ed to the	FCC colum	n for fract	ionation.			
					TOTAL ORE	RATING HO	u IDC					
					OF EMISSIC		JUKS	1937				
					OI EIIIIOOIC	or o	_	1,5,7	•			
A. EMISSION DATA SUMMARY					B. CEM PER	RFORMANCI	E SUMMARY	,				
						,						
1 DURATION OF EXCESS EMIS	SIONS (HRS)					1 DURATIO	N OF CEM D	OWNTIME DU	RING			
a) Startup/Shutdown			44.00	ŀ		SOURCE	OPERATION	(HRS)				
b) Control equipment			0.00			•	malfunction		0.00			
c) Process problems			0.00			•	nitor malfund	tion	0.00			
d) Other known causes			0.00			c) QA calib			2.00			
e) Unknown causes			0.00	ļ			nown causes		2.00			
f) Soot blowing			0.00	ŀ		e) Unknow	n causes		0.00			
g) Fuel problems			0.00	ļ								
2 TOTAL DURATION (HRS)			44.00	ŀ	:	2 TOTAL DU	JRATION (HF	RS)	4.00			
3 PERCENT OF TOTAL				İ	;	3 PERCENT	OF TOTAL					
EXCESS EMISSIONS			2.28%			CEM DOW	VNTIME		0.21%			
	FOR OPACIT	ry, record	ALL TIMES I	MINUTE	ES. FOR GA	ASES, RECO	ORD ALL TIM	ES IN HOURS				
% Total Excess Emissions =		Total Durat	ion of Excess	Emissions	s / (Total Op	erating Time	- CEM Down	ntime)				
% Total CEM Downtime =		CEM Down	time / Total Op	perating T	ime							
NOTES: Actual monitored values are no	ited in this section		- · · · - · - · • r									
During excess emission events			he high calibra	ation gas	concentratio	n is used to a	renlace any a	nalyzer readin	os over that value s	since		
measured data points are not v												
for greater detail.			<u>J</u>							1		
If no exceedances: I certify that the re	quired analyses									nces during the reporting		
SUBMITTED BY:	•		age at from				•	DATE:				

CONTINUOUS EMISSION MONITOR EXCESS EMISSION REPORT

REPORTING QUARTER:			Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):			FCC regenerator	
POLLUTANT MONITORED:			CO and O2	
DATE/TIME		TOTAL DURATION (HRS)	MAX. CONCENTRATION (ppm), hourly average	CAUSE/CORRECTIVE ACTION
	2018 10:00 1/2018 6:00 _	44.00 44.00	Actual Recalc _ 2536.6 1,325	See the incident description in the report narrative.
b) Control equipment	10/1/2018 1/1/2019	0.00	-	
Total c) Process problems		0.00	No excess emissions.	
c) Process problems	10/1/2018 1/1/2019			
Total		0.00	No excess emissions.	
d) Other known causes	10/1/2018 1/1/2019		_	
Total		0.00	No excess emissions.	
e) Unknown causes Total	10/1/2018 1/1/2019	0.00	No excess emissions.	
f) Soot blowing	10/1/2018			
Total	1/1/2019_	0.00	No excess emissions.	
g) Fuel problems	10/1/2018 1/1/2019			
Total	1/1/2019_	0.00	No excess emissions.	

CONTINUOUS EMISSION MONITOR DOWNTIME REPORT

REPORTING QUARTER:			Fourth, 2018	AQD FILE #: #0203 (AI ID 447)	203 (AI ID 447)			
EMISSION UNIT(S)	:		FCC regenerator					
POLLUTANT MONI	TORED:		CO and O2					
DATE/TIMI	<u> </u>	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION					
a) Monitor malfuncti	on							
	Total	0.00	-					
b) Non-monitor malf	unction							
	Total	0.00	-					
c) QA calibration	11/27/18 9:00 11/27/18 11:00 Total	2.00 2.00	_Quarterly audit		•			
d) Other known caus	ses 10/10/2018 1:00 10/10/2018 3:00	2.00	Preventative maintenance					
	Total	2.00	-					
e) Unknown causes								
	Total	0.00	-					

MINNESOTA POLLUTION CONTROL AGENCY

	AQDFILE#: #0203 (AI ID 447)									
			EYCESS	EMISSION A	ND CEM	REPORTING I	-OPM			
			LAULUU	LIVINGGIOIN	NAD OF INI	CLI OKTINO I	OIXIM			
POLLUTANT (circle one):	SO2	SOX	(NOx)	CO	CO2	$\bigcirc 2)$	TRS	H2S	HCL	Opacity
	Other:									
	-				MONITO					
REPORTING QUARTER:	Fourth, 2018				MODEL:	Advance O	ptima (T	Jras UV) G	as Analyzer	
FACILITY:					MFR:	ABB				
St. Paul Park Re	fining Co. LLC									
					EMISSIO	N LIMIT AND	AVEDAGE	TIME:		
EMISSION SUBJECT ITEM:	EQUI2					vd, 02 free	—		average	
						vd, O2 free				
EMISSION UNIT(S):	FCC regenerate	nr			EMISSIO	N BASIS:				
LIVII33ION ONT (3).	Tee regenerae.					t Decree Ei	ffective	4/3/06		
ASSOCIATED ITEMS:	EQUI164, TREA	17								
PROCESS UNIT DESCRIPTIO	N: 1	EOUI2 is	a fluidiz	ed catal	vtic cra	acking unit	:.			
								lumn for f	ractionation.	
						TOTAL OPE	DATING L	IOI IDE		
						OF EMISSIC		IOOKS	1937	
,										
A. EMISSION DATA SUMMAI	₹Y				B. CEM	PERFORMAN	ICE SUM	MARY		
1 DURATION OF EXCE	SS EMISSIONS (HR	S)	7 Day	365 Day	1	DURATION	OF CEM D	OWNTIME D	URING	
a) Startup/Shutdown	•	,	0.00	0.00		SOURCE OF		(HRS)		
b) Control equipment c) Process problems			0.00	0.00	-	a) Monitor mb) Non-moni			0.00	
d) Other known cause	s		0.00	0.00	1	c) QA calibra		_	2.00	
e) Unknown causes	•		0.00	0.00		d) Other kno		<u> </u>	2.00	
f) Soot blowing			0.00	0.00		e) Unknown	causes	_	0.00	
g) Fuel problems	IDC)		0.00	0.00	4 .	TOTAL DUE	ATION (L	DC)	4 00	
2 TOTAL DURATION (F 3 PERCENT OF TOTAL			0.00	0.00		2 TOTAL DUR 3 PERCENT (4.00	
EXCESS EMISSIONS			0.00%	0.00%		CEM DOWN		_	0.21%	
					1					
	FOR OPACITY, RE	ECORD AL	L TIMES IN N	MINUTES. F	OR GASE	S. RECORD A	ALL TIMES	IN HOURS.		
% Total Excess Emissions =	,	Fatal Durati	an of Europa	Emissions ((Total On	erating Time -	CEM Dow	ntimo\		
% Total Excess Emissions -	'	i otai Durati	on or excess	EIHSSIONS /	(Total Ope	eraung rime -	CEM DOW	Harrie)		
% Total CEM Downtime =	(CEM Down	time / Total O	perating Tin	ne					
NOTE:										
CEM downtime is	the same downti	me repo	rted on th	e form f	or EQUI2	for CO p	om.			
										
If no exceedances: I certify that	the required analyse	s were ma	de, that I am t	familiar with	the results	s, and that to th	ne best of r	ny knowledae	there were no exce	edances during the
reporting period. I certify that I										•
SUBMITTED BY:	See certificat	tion now	a at franc	of reso	rt			DATE:		
SUDIVILLIED BT.	Dee Certifica	LIOII pag	C at IIOIII	or repo				DAIE		

CONTINUOUS EMISSION MONITOR EXCESS EMISSION REPORT

REPORTING QUARTER:		Fourth, 2018		AQD FILE #: #0203 (AI ID 447)	
EMISSION UNIT(S):		FCC regenerator		American Conference on the Con	
POLLUTANT MONITORED:		NOx and O2			
	TOTAL	MAX.			
	DURATION	CONCENTRATION			
DATE/TIME	(HRS)	(ppm), 7-day rolling avg	CAUSE/CORRECTIVE ACTION		
a) Startup/Shutdown					
a) Startup/Shutdown					
10/1/2018		No access audicales			
1/1/2019 _ Total	0.00	_ No excess emissions.			
Total	0.00				
b) Control equipment					
10/1/2018					
1/1/2019		No excess emissions.			
Total	0.00	_ NO excess emissions.			
rotar	0.00				
c) Process problems					
10/1/2018					
1/1/2019_		No excess emissions.			
Total	0.00	_140 €X0€33 €11113310113.			
d) Other known causes					
10/1/2018					
1/1/2019		No excess emissions.			
Total	0.00	_			
a) Hakaayaa aayaaa					
e) Unknown causes 10/1/2018					
1/1/2019		No excess emissions.			
Total	0.00	_ NO excess emissions.			
i otal	0.00				
f) Soot blowing					
10/1/2018					
1/1/2019		No excess emissions.			
Total	0.00				
g) Fuel problems					
g) Fuel problems 10/1/2018					
1/1/2019		No excess emissions.			
Total	0.00				
1 0(a)	0.00				

CONTINUOUS EMISSION MONITOR EXCESS EMISSION REPORT

REPORTING QUARTER:		Fourth, 2018	- 	AQD FILE #: #0203 (AI ID 447)	
EMISSION UNIT(S):		FCC regenerator			
POLLUTANT MONITORED:		NOx and O2			
	TOTAL	MAX.			
	DURATION	CONCENTRATION			
DATE/TIME	(HRS)	(ppm), 365-day rolling avg	CAUSE/CORRECTIVE ACTION		
a) Startup/Shutdown					
 a) Startup/Shutdown 					
10/1/2018					
1/1/2019		No excess emissions.			
Total	0.00				
b) Control equipment					
10/1/2018					
1/1/2019		No excess emissions.			
Total	0.00	_ INO excess ellissions.			
Total	0.00				
c) Process problems					
10/1/2018					
1/1/2019		No excess emissions.			
Total	0.00	_ 140 excess emissions.			
lotai	0.00				
d) Other known causes					
10/1/2018					
1/1/2019		No excess emissions.			
Total	0.00	_110 excess ellissions.			
Total	0.00				
e) Unknown causes					
10/1/2018					
1/1/2019		No excess emissions.			
Total	0.00				
f) Soot blowing					
10/1/2018					
1/1/2019		No excess emissions.			
Total	0.00	_ NO excess emissions.			
g) Fuel problems					
10/1/2018					
1/1/2019		No excess emissions.			
Total	0.00				

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		FCC regenerator	AND THE PROPERTY OF THE PROPER
POLLUTANT MONITORED:		NOx and O2	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
<i>p,</i>	(!		
a) Monitor malfunction			
Total	0.00	See FCC CO CEM downtime.	
b) Non-monitor malfunction	0.00	occi oc oc ocivi downame.	
Total	0.00	See FCC CO CEM downtime.	
c) QA calibration			
Total	2.00	See FCC CO CEM downtime.	
d) Other known causes			
Total	2.00	See FCC CO CEM downtime.	
e) Unknown causes			

0.00

See FCC CO CEM downtime.

Total

AQD FILE#: #0203 (AI ID 447)

		EXCES	S EMISSIO	N AND CEM	REPORTIN	NG FORM				
POLLUTANT (circle one):	SO2	sox	NOx	со	CO2	<u>O2</u>	TRS	H2S	HCL	Opacity
	Other:									
	_				MONITOR	-				
REPORTING QUARTER:	Fourth, 2018			_	MODEL:	Advance (Optima (L	imas UV)	Gas Analyze	r
FACILITY:					MFR:	ABB				
St. Paul Park Refi	ning Co. LLC									
					=					
EMISSION SUBJECT ITEM:	EOUT 2					N LIMIT AND				
EMISSION SUBJECT ITEM.	EQUI2					vd, O2 fre d, O2 free				
					30 ppilive	<u>u, 02 11ee</u>	- 363 0	ty TOTTING	gaverage	
EMISSION UNIT(S):	FCC regenerator	<u> </u>			EMISSIO	N BASIS:				
					Consent	Decree Ef	fective 6	/30/06		
ASSOCIATED ITEMS:	EQUI164, TREA1	7								
PROCESS UNIT DESCRIPTION:	D/	MITO in a	fluidir	od gatalu	tia araal	king unit.				
TROOLOG GIVET BLOOKIF HON.							FCC colum	n for fra	actionation	
					410 1040	00 0110	- 00 00			
						TOTAL OP	ERATING H	OURS		
						OF EMISSI	ON UNIT:		1937	
A. EMISSION DATA SUMMARY					ID CEM D	FRECRIMAN	OF CLIMANA	DV		
A. ENISSION DATA SUMMARY					B. CEWI P	ERFORMAN	CE SUIVINA	art i		
1 DURATION OF EXCESS	EMISSIONS (HRS)		7 Day	365 Day	ļ .	1 DURATION	OF CEM D	OWNTIME	DURING	
a) Startup/Shutdown			0.00	0.00		SOURCE C				
b) Control equipment			0.00	0.00	1	a) Monitor n	nalfunction	. ,	0.00	
c) Process problems			0.00	0.00]	b) Non-mon	itor malfunc	tion	0.00	
d) Other known causes			0.00	0.00	j	c) QA calibr	ation		2.00	
e) Unknown causes			0.00	0.00		d) Other kn	own causes		2.00	
f) Soot blowing			0.00	0.00		e) Unknown	causes		0.00	
g) Fuel problems			0.00	0.00	_					
2 TOTAL DURATION (HRS	5)		0.00	0.00		2 TOTAL DUI		RS)	4.00	
3 PERCENT OF TOTAL					3	3 PERCENT				
EXCESS EMISSIONS			0.00%	0.00%	1	CEM DOW	NIIME		0.21%	
	FOR OPACITY, RE	CORD ALL	TIMES IN I	MINUTES. F	OR GASES	S, RECORD A	ALL TIMES	IN HOURS.		
% Total Excess Emissions =	To	tal Duration	of Excess	Emissions /	(Total Opera	ating Time - C	EM Downtii	me)		
					(,		
% Total CEM Downtime =	Ci	EM Downtin	ne / Totał O	perating Tim	е					
NOTE:					7011T2 #					
CEM downtime is the	same downtime	reported	on the	torm for	SQUIZ FOR	co ppm				
If no exceedances: I certify that the	e required analyses w	ere made, t	hat I am far	niliar with the	e results, an	nd that to the l	best of my k	nowledge th	ere were no ex	ceedances
•							•			
SUBMITTED BY:	See certificat:	on page	at front	of repor	t			DATE:		

REPORTING QUARTER:		Fourth, 2018	· ·	AQD FILE#: #0203 (AI ID 447)
EMISSION UNIT(S):		FCC regenerator		
POLLUTANT MONITORED:		SO2 ppmvd, O2 fre	е	
DATE/TIME	TOTAL DURATION (days)	MAX. CONCENTRATION (ppm), 7-day average	CAUSE/CORRECTIVE ACTION	
a) Startup/Shutdown 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.		
b) Control equipment 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
c) Process problems 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
d) Other known causes 10/1/2018 1/1/2019 _ Total	0.00	_ No excess emissions.		
e) Unknown causes 10/1/2018 1/1/2019 _ Total	0.00	_ No excess emissions.		
f) Soot blowing 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.		
g) Fuel problems 10/1/2018 1/1/2019 _ Total	0.00	_ No excess emissions.		

REPORTING QUARTER:		Fourth, 2018		AQD FILE#: #0203 (AI ID 447)
EMISSION UNIT(S):		FCC regenerator		
POLLUTANT MONITORED:		SO2 ppmvd, O2 fre	ee	
DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (ppm), 365-day average	CAUSE/CORRECTIVE ACTION	
	· · · · · · · · · · · · · · · · · · ·	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
a) Startup/Shutdown				
10/1/2018 1/1/2019		No excess emissions.		
Total	0.00	NO excess emissions.		
b) Control equipment				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00	_		
c) Process problems				
10/1/2018				
1/1/2019 _		No excess emissions.		
Total	0.00	_		
d) Other known causes				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00			
e) Unknown causes				
10/1/2018				
1/1/2019 _		No excess emissions.		
Total	0.00			
f) Soot blowing				
10/1/2018				
1/1/2019 _		No excess emissions.		
Total	0.00			
g) Fuel problems				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00			

REPORTING QUARTER:		Fourth, 2018	AQD FILE#: #0203 (AI ID 447)	
EMISSION UNIT(S):		FCC regenerator		
POLLUTANT MONITORED:		SO2 ppmvd, O2 free		
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION		
NOTE:	(IIIVO)	CAUSE/CORRECTIVE ACTION		
	he same downti	me reported on the form for EQUI2 :	for CO ppm	
a) Monitor malfunction				
Total	0.00	See FCC CO CEM downtime.		
b) Non-monitor malfunction				
Total	0.00	See FCC CO CEM downtime.		
c) QA calibration				
Total	2.00	See FCC CO CEM downtime.		
d) Other known causes				
Total	2.00	See FCC CO CEM downtime.		
e) Unknown causes				
Total	0.00	See FCC CO CEM downtime.		

AQD FILE#: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one):	(SO2)	SOX	NOx	CO	CO2	$\bigcirc 2)$	TRS	H2S	HCL	Opacity
	Other:			_						
					MONITO	R				
REPORTING QUARTER:	Fourth, 2018	<u>.</u>		-	MODEL:	Advance	Optima (1	Limas UV) Gas Analy	/zer
FACILITY:					MFR:	ABB				
St. Paul Park	Refining Co.	LLC						***		
				-						
				-	EMISSIO	N LIMIT AND	O AVERAGE	TIME:		
EMISSION SUBJECT ITEM:	EQUI2			_	793.65	lbs/hr -	3 hour r	olling a	average	
EMISSION UNIT(S):	FCC regenera	tor			FMISSIO	N BASIS:	SIP for S	SO2 NAAO	S	
2(0).				-	211110010		<u> </u>	JOE HIERO		
ASSOCIATED ITEMS:	EQUI164, TRE	A17								
				-						
PROCESS UNIT DESCRIPT	ION:	EQUI2 is a	tluidized	cata	alytic c	racking u	nit.			
	_	The materi	als from t	he FO	CC are r	outed to	the FCC o	column f	or fraction	nation.
					TOTAL	PERATING	HOURS			
						SION UNIT:		1937		
					O. Linio	0.011 0.111	_	-235,	_	
A. EMISSION DATA SUMMA	ARY				B. CEM F	PERFORMA	NCE SUMM	ARY		
1 DURATION OF EX		(HRS)			1	DURATION			E DURING	
a) Startup/Shutdowi		_	0.00	_			OPERATION	(HRS)		
b) Control equipme		_	0.00	-		,	malfunction		0.00	
c) Process problem		_	0.00	-			nitor malfun	ction	0.00	
d) Other known cau		_	0.00	-		c) QA calib			2.00	
e) Unknown causes	;		0.00	_		,	own causes	3	2.00	
f) Soot blowing		_	0.00	_		e) Unknow	n causes		0.00	
g) Fuel problems		_	0.00							
2 TOTAL DURATION	` '	_	0.00	_	1	2 TOTAL DU	•	RS)	4.00	
3 PERCENT OF TOT					3	PERCENT				
EXCESS EMISSION	NS	-	0.00%	-		CEM DOW	NTIME		0.21%	
	FOR OPACITY,	RECORD ALL	. TIMES IN MI	NUTES	S. FOR G	ASES, RECC	ORD ALL TI	MES IN HO	URS.	
% Total Excess Emissions =		Total Duration	of Excess Em	nission	ıs / (Total C	Operating Tir	me - CEM D	owntime)		
% Total CEM Downtime =		CEM Downtim	ie / Total Oper	ating 1	Time					
70 TOTAL OEM BOWNSING		OLIN DOWNLIN	ic / Total Oper	u.ii.ig						
NOTE:										
CEM downtime i	s the same do	wntime rep	orted on t	he fo	orm for	EQUI2 for	CO ppm			
				-						
If no exceedances: I certify there were no exceedances		ng period. I ce	ertify that I am	familia	ar with the					
SUBMITTED BY:	See certific	,	edge the inform					DATE:		

REPORTING QUARTER:		Fourth, 2018	AQD FILE#: #0203 (AI ID 447)
EMISSION UNIT(S):		FCC regenerator	
POLLUTANT MONITORED:		S02	
DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (lbs/hr)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown 10/1/2018 1/1/2019			
Total	0.00	_	
b) Control equipment 10/1/2018 1/1/2019 _ Total	0.00	_	
Total	0.00		
c) Process problems 10/1/2018 1/1/2019			
Total	0.00	_	
d) Other known causes 10/1/2018 1/1/2019 _		_	
Total	0.00		
e) Unknown causes 10/1/2018 1/1/2019 _		_	
Total	0.00		
f) Soot blowing 10/1/2018 1/1/2019 _ Total	0.00	_	
	5.55		
g) Fuel problems 10/1/2018 1/1/2019		_	
Total -	0.00		

REPORTING QUARTER:		Fourth, 2018	AQD FILE#: #0203 (AI ID 447)
EMISSION UNIT(S):		FCC regenerator	
POLLUTANT MONITORED:		S02	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
NOTE: CEM downtime is	the same d	owntime reported on the form for	r EQUI2 for CO ppm
a) Monitor malfunction			
Total	0.00	See FCC SO2 ppm CEM downtime.	
b) Non-monitor malfunction			
Total	0.00	See FCC SO2 ppm CEM downtime.	
c) QA calibration			
Total	2.00	See FCC SO2 ppm CEM downtime.	
d) Other known causes			
Total	2.00	See FCC SO2 ppm CEM downtime.	
e) Unknown causes			
Total .	0.00	_See FCC SO2 ppm CEM downtime.	

AQD FILE #: #0203 (AI ID 447) **EXCESS EMISSION AND CEM REPORTING FORM** POLLUTANT (circle one): SO2 SOX NOx CO CO₂ O2 H2S HCL Opacity Other: MONITOR REPORTING QUARTER: MODEL: Advance Optima (Limas UV) Gas Analyzer Fourth, 2018 FACILITY: MFR: ABB St. Paul Park Refining Co. LLC EMISSION LIMIT AND AVERAGE TIME: EMISSION SUBJECT ITEM: EQUI2 9.8 lb SOx/1000 lb coke burn - 7 day rolling avg EMISSION BASIS: EMISSION UNIT(S): FCC regenerator Consent Decree, Appendix I, and NSPS 60.104(b)(2), 60.104(c) ASSOCIATED ITEMS: EQUI164, TREA17 EQUI2 is a fluidized catalytic cracking unit.

The materials from the FCC are routed to the FCC column for fractionation. PROCESS UNIT DESCRIPTION: TOTAL OPERATING HOURS OF EMISSION UNIT: 1937 A. EMISSION DATA SUMMARY B. CEM PERFORMANCE SUMMARY 1 DURATION OF EXCESS EMISSIONS (HRS) 1 DURATION OF CEM DOWNTIME DURING a) Startup/Shutdown SOURCE OPERATION (HRS) 0.00 b) Control equipment 0.00 a) Monitor malfunction 0.00 c) Process problems b) Non-monitor malfunction 0.00 0.00 d) Other known causes c) QA calibration 0 00 2 00 e) Unknown causes 0.00 d) Other known causes 2.00 f) Soot blowing e) Unknown causes 0.00 0.00 a) Fuel problems 0.00 2 TOTAL DURATION (HRS) 2 TOTAL DURATION (HRS) 0.00 4.00 3 PERCENT OF TOTAL 3 PERCENT OF TOTAL **EXCESS EMISSIONS** CEM DOWNTIME 0.00% 0.21% FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. % Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime) % Total CEM Downtime = CEM Downtime / Total Operating Time NOTE . CEM downtime is the same downtime reported on the form for EQUI2 for CO ppm If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid. SUBMITTED BY: See certification page at front of report DATE

EMISSION UNIT(S): FCC regenerator POLLUTANT MONITORED: Lb SOX DATE/TIME	REPORTING QUARTER:		Fourth, 2018	AQD FILE#: #0203 (AI ID 447)
DATE/TIME	EMISSION UNIT(S):		FCC regenerator	-
DATE/TIME	POLLUTANT MONITORED:		Lb SOX	<u></u>
a) Startup/Shutdown		DURATION		CAUSE/CORRECTIVE ACTION
1/1/2019				
Total 0.00				
b) Control equipment 10/1/2018 1/1/2019 Total 0.00 c) Process problems 10/1/2018 1/1/2019 Total 0.00 No excess emissions. 10/1/2018 1/1/2019 Total 0.00 No excess emissions. No excess emissions. 10/1/2018 1/1/2019 Total 0.00 No excess emissions. No excess emissions. 10/1/2018 1/1/2019 Total 0.00 No excess emissions. 10/1/2018 1/1/2019 No excess emissions. 10/1/2018 1/1/2019 No excess emissions. No excess emissions.			_No excess emissions.	
10/1/2018 1/1/2019 Total C) Process problems 10/1/2018 1/1/2019 Total O.00 No excess emissions. No excess emissions. No excess emissions. No excess emissions. 10/1/2018 1/1/2019 Total O.00 No excess emissions. No excess emissions. 10/1/2018 1/1/2019 Total No excess emissions. 10/1/2018 1/1/2019 No excess emissions.	lotal	0.00		
10/1/2018 1/1/2019 Total C) Process problems 10/1/2018 1/1/2019 Total O.00 No excess emissions. No excess emissions. No excess emissions. No excess emissions. 10/1/2018 1/1/2019 Total O.00 No excess emissions. No excess emissions. 10/1/2018 1/1/2019 Total No excess emissions. 10/1/2018 1/1/2019 No excess emissions.	b) Control equipment			
1/1/2019				
Total 0.00 c) Process problems 10/1/2018			No excess emissions.	
10/1/2018		0.00	_	
10/1/2018	a) Drassas mushlama			
1/1/2019				
Total 0.00 d) Other known causes			No evoess emissions	,
10/1/2018 1/1/2019 No excess emissions. Total e) Unknown causes 10/1/2018 1/1/2019 Total No excess emissions. Total 10/1/2018 1/1/2019 No excess emissions.		0.00		
10/1/2018 1/1/2019 No excess emissions. Total e) Unknown causes 10/1/2018 1/1/2019 Total No excess emissions. Total 10/1/2018 1/1/2019 No excess emissions.				
1/1/2019				
Total 0.00 e) Unknown causes 10/1/2018				
e) Unknown causes 10/1/2018		0.00	_No excess emissions.	
10/1/2018 1/1/2019	Iotai	0.00		
10/1/2018 1/1/2019	e) Unknown causes			
Total 0.00 f) Soot blowing 10/1/2018 1/1/2019 No excess emissions.	10/1/2018			
f) Soot blowing 10/1/2018 1/1/2019 No excess emissions.	1/1/2019 _		No excess emissions.	
10/1/2018 1/1/2019 No excess emissions.	Total	0.00		
10/1/2018 1/1/2019 No excess emissions.	f) Soot blowing			
1/1/2019 No excess emissions.				
			No excess emissions	
		0.00		
a) Firel problems	a) Fuel problems			
g) Fuel problems 10/1/2018				
1/1/2019 No excess emissions.			No excess emissions	
Total 0.00		0.00		

REPORT	TING QUARTER:		Fourth, 2018	AQD FILE#: #0203 (AI ID 447)
EMISSIO	ON UNIT(S):		FCC regenerator	
POLLUT	ANT MONITORED:		Lb SOX	
	DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
	NOTE: CEM downtime is	s the same	downtime reported on the for	m for EQUI2 for CO ppm
a) Monito	or malfunction			
	Total	0.00	See FCC NOx or CO CEM downtime.	
b) Non-m	nonitor malfunction			
	Total	0.00	See FCC Nox or CO CEM downtime.	
c) QA ca	libration			
	Total	2.00	See FCC NOx or CO CEM downtime.	
d) Other	known causes			
	Total -	2.00	See FCC Nox or CO CEM downtime.	
e) Unkno	own causes			
	Total -	0.00	See FCC NOx or CO CEM downtime.	

AQD FILE#: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one):	SO2	NOx	CO	CO2	02	TRS	H2S	HCL	Opacity
	Other:	Flow							
				-	MONITO)R			
REPORTING QUARTER:	Fourth, 20	L8		-	MODEL	Fuel Gas	s Flow Ra	ate/FG H2S	CEM
FACILITY:					MFR:				
St. Paul Park Refi	ning Co. LLC					•			
				-					
				-	EMISSI	ON LIMITS	AND AVER	RAGING TIM	≘ :
EMISSION SUBJECT ITEM:	EQUI3			_	2.62 1	b SO2/hr	- 3 hour	rolling	avg.
					1.75 1	b SO2/mmk	otu - 3 h	nour rolli	ng avg.
EMISSION UNIT(S):	No. 2 Crude	· Vacuum He	eater		EMISSIO	ON BASIS:		SIP for S	O2 NAAOS
\-\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	5-B-1			•			•		Na N
ACCOCIATED ITEMO.									
ASSOCIATED ITEMS:	COMG7, COMC	320, EQUI16	33, EQUI175	5, EQUI206,	_STRU70,	COMG20			
					TOTAL (OPERATING	3 HOURS	Total	
						SSION UNI		1974	
A. EMISSION DATA SUMMARY					B. CEM	PERFORM	ANCE SUN	MARY	
1 DURATION OF EXCESS	EMISSIONS /H	DC)	lb/hr	lb/mmbtu	1	LDUBATIO	N OF CEM	DOWNTIME	DURING
a) Startup/Shutdown	LIMIOSIONS (1)	NO)	0.00	0.00	, '		OPERATIO		Fuel Gas
b) Control equipment		-	0.00	0.00	1	a) Monitor malfunction 0.00			
c) Process problems		-	0.00	0.00	1	•	nitor malfu		0.00
d) Other known causes		_	0.00	0.00		c) QA calit	oration		0.00
e) Unknown causes		_	0.00	0.00	7	d) Other k	nown cause	es	0.00
f) Soot blowing			0.00	0.00]	e) Unknow	n causes		0.00
g) Fuel problems			0.00	0.00]				
2 TOTAL DURATION (HRS	S)		0.00	0.00] 2	TOTAL DU	JRATION (I	HRS)	0.00
3 PERCENT OF TOTAL					3	PERCENT	OF TOTAL	L	
EXCESS EMISSIONS		_	0.00%	0.00%		CEM DOV	VNTIME		0.00%
	EOR OBACIT	/ BECORD A	II TIME CINI	MINISTER FO	B CASES	DECORD	ALL TIMES	C IN HOURS	
	FOR OFACITI	, RECORD A	CE HIVES IN	MINUTES. FO	K GASES	, RECORD	ALL HIVE	3 IN HOURS	
% Total Excess Emissions =		Total Duration	of Excess Em	nissions / (Total	l Operatino	g Time - CE	M Downtim	ie)	
% Total CEM Downtime =		CEM Downtin	ne / Total Oper	rating Time					
NOTES:									
NOTES.									
•						=			
				· · · · · · · · · · · · · · · · · · ·			·		
		•							
If no exceedances: I certify that the during the reporting period. I certif									
SUBMITTED BY:	See certifi			,		o, Ki	_	DATE:	
CODIMITIED DI.		pus	, - 40	. or report				DATE.	

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		5-B-1	
POLLUTANT MONITORED:		SO2 lb/hr - 3 hour rolling average	
	TOTAL		
DATE/TIME	DURATION (HRS)	MAX. EMISSIONS RATE CAUSE/CORRECTIVE ACTION	
DATE/TIME	(HK3)	WAX. EMISSIONS RATE CAUSE/CORRECTIVE ACTION	
a) Startup/Shutdown			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019		_ No excess emissions.	
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019		_No excess emissions.	
Total	0.00		
d) Other lines in a con-			
d) Other known causes 10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	NO excess entissions.	
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
g) Fuel problems			
10/1/2018		No summer and all the	
1/1/2019		No excess emissions.	
Total	0.00		

REPORTING QUARTER:		Fourth, 2018	AQD FILE#: #0203 (AI ID 447)
EMISSION UNIT(S):		5-B-1	
POLLUTANT MONITORED:		SO2 lb/mmbtu - 3 hour rolling average	_
DATE/TIME	TOTAL DURATION (HRS)	MAX. EMISSIONS RATE CAUSE/CORRECTIVE ACTION	
DATEITIME	(111(3)	MAX. EMISSIONS RATE CAUSE/CORRECTIVE ACTION	
a) Startup/Shutdown 10/1/2018		N	
1/1/2019 Total		_No excess emissions.	
Iotai	0.00		
b) Control equipment 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00	140 excess emissions.	
, otal	0.00		
c) Process problems 10/1/2018			
1/1/2019 Total	0.00	_No excess emissions.	
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	=	
f) Soot blowing			
10/1/2018		No aveces emissions	
1/1/2019 Total	0.00	_No excess emissions.	
) Otal	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019		_ No excess emissions.	
Total	0.00		

REPORTING QUARTER:		Fourth, 2018	AQD FILE#: #0203 (AI ID 447)	
EMISSION UNIT(S):		5-B-1, fuel gas flow meter	***************************************	
POLLUTANT MONITORED:		S02		
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION		
a) Monitor malfunction				
Total	0.00	-		
b) Non-monitor malfunction				
Total	0.00	-		
c) QA calibration				
Total	0.00	-		
d) Other known causes				
Total	0.00	-		
e) Unknown causes				
Total	0.00	-		

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one):	SO2 NOx Other:	CO CO2	O2 TRS	H2S HCL	Opacity
REPORTING QUARTER:	Fourth, 2018		MONITOR MODEL: MFR: ABB	Advance Optima L	imas 11
FACILITY:					
St. Paul Park Refi	ining Co. LLC		E-1100101111		_
				AIT AND AVERAGE TIME	
EMISSION SUBJECT ITEM	DOM:			btu - 12 month rol	
EMISSION SUBJECT ITEM:	EQUI4	,	0.14 lbs/mm	btu - 3 hour rollin	ng average
			EMISSION BA	.SIS:	
EMISSION UNIT(S):	Heater 2-B-3			OCFR 52.21, Minn. 1	R. 7007.3000
ASSOCIATED ITEMS:	COMG7, EQUI163, EQUI176	5, EQUI296,		ATING HOURS I UNIT:1934	_
A. EMISSION DATA SUMMAR			R CEM DEDE	ORMANCE SUMMARY	
1 DURATION OF EXCES			B. OZIM I ZIG	ONNANOL SOMMAN	
	12 mo	3 hr	1 DURAT	TION OF CEM DOWNTIN	ME DURING
a) Startup/Shutdown	0.00	0.00	SOUR	CE OPERATION (HRS)	
b) Control equipment	0.00	0.00	a) Mon	itor malfunction	0.00
c) Process problems	0.00	0.00	b) Non-	-monitor malfunction	0.00
d) Other known causes	0.00	0.00	c) QA d	calibration	1.00
e) Unknown causes	0.00	0.00	d) Othe	er known causes	3.00
f) Soot blowing	0.00	0.00	e) Unkr	nown causes	0.00
g) Fuel problems	0.00	0.00			
2 TOTAL DURATION (HF	RS) 0.00	0.00	2 TOTAL	. DURATION (HRS)	4.00
3 PERCENT OF TOTAL			3 PERCE	ENT OF TOTAL	
EXCESS EMISSIONS	0.00%	0.00%	CEM D	OWNTIME	0.21%
	FOR OPACITY, RECORD ALL	L TIMES IN MIN	NUTES. FOR G	GASES, RECORD ALL TI	IMES IN HOURS.
% Total Excess Emissions =	Total Duration o	of Excess Emiss	sions / (Total Op	perating Time - CEM Dow	ntime)
% Total CEM Downtime =	CEM Downtime	/ Total Operation	ng Time		
NOTES:					
	at the required analyses were mad orting period. I certify that I am fa				
SUBMITTED BY:	See certification page a	t front of	report	DATE:	

REPORTING QUARTER:		Fourth, 2018		AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		Heater 2-B-3	···	
POLLUTANT MONITORED:		NOx 1b/mmbtu (12	month rolling avg)	and O2
DATE/TIME	DURATION	CONCENTRATION	CAUSE/CORRECTIVE	ACTION
a) Startup/Shutdown 10/1/2018 1/1/2019		No excess emissions.		
Total	0.00	_		
b) Control equipment 10/1/2018 1/1/2019		No excess emissions.		
Total	0.00	_		
c) Process problems 10/1/2018 1/1/2019		No excess emissions.		
Total	0.00			
d) Other known causes 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.		
e) Unknown causes 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.		
f) Soot blowing 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.		
g) Fuel problems 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.		

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		Heater 2-B-3	
POLLUTANT MONITORED:		NOx 1b/mmbtu (3 h	r rolling avg) and O2
DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (lbs/mmbtu)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00		
b) Control equipment 10/1/2018 1/1/2019 Total	0.00	No excess emissions.	
	0.00		
c) Process problems 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
d) Other known causes 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00		
e) Unknown causes 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.	
f) Soot blowing 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00	NO excess emissions.	
g) Fuel problems 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00		

REPORTING QUARTER:		Fourth, 2018	AQD FILE#: #0203 (AI ID 447)
EMISSION UNIT(S):		Heater 2-B-3	
POLLUTANT MONITORED:		NOx and O2	
DATE/TIME	TOTAL	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total	0.00	_	
b) Non-monitor malfunction			
Total	0.00	_	
c) QA calibration			
10/22/2018 14:00 10/22/2018 15:00 _	1.00	_ Quarterly audit	
d) Other known causes 10/23/2018 9:00			
10/23/2018 12:00_	3.00 3.00	_ Leak checked; replaced filter and o-rings	
e) Unknown causes			
Total	0.00		

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one):	Other:) Flow	CO C	O2 O2 TRS H2	S HCL	Opacity	
	Other. F10w		MONITOR			
REPORTING QUARTER:	Fourth, 2018		MODEL: Fuel Gas Flow	Rate/FG H2S C	EM.	
FACILITY:			MFR:			
St. Paul Park F	Refining Co. LLC					
			EMISSION LIMITS AND AV	ERAGING TIME:		
EMISSION SUBJECT ITEM:	EQUI4		4.16 lb SO2/h			
			1.75 lb SO2/mm	mbtu - 3 hour	rolling ave	3 -
	No. O Constant Character					
EMISSION UNIT(S):	No. 2 Crude Charge	Heater	EMISSION BASIS:	SIP for	SO2 NAAQS	
	2-B-3					
ASSOCIATED ITEMS:	COMG7, EQUI163, EQU	IT176 FOUT296	CEDIT E			
ASSOCIATED ITEMS.	COMG7, EQUITES, EQU	1176, EQU1296,	SIROIS			
			OPERATING HOURS OF E	MISSION UNIT		
				Total	Fuel Gas	Natural Gas
				1934	1934	1934
				- ,		
A. EMISSION DATA SUMMA	ARY		B. CEM PERFORMANCE S	SUMMARY		
1 DURATION OF EXC	CESS EMISSIONS (HRS)		1 DURATION OF C	EM DOWNTIME D	URING	
	lb/hr	lb/mmbtu	SOURCE OPERA	TION (HRS)		
a) Startup/Shutdowr	0.00	0.00			Fuel Gas	Natural Gas
b) Control equipmer	nt <u>0.00</u>	0.00	a) Monitor malfund	ction	0.00	0.00
c) Process problems	0.00	0.00	b) Non-monitor ma	alfunction	0.00	0.00
d) Other known caus	ses0.00	0.00	c) QA calibration		0.00	0.00
e) Unknown causes	0.00	0.00	d) Other known ca	uses	0.00	0.00
f) Soot blowing	0.00	0.00	e) Unknown cause	es	0.00	0.00
g) Fuel problems	0.00	0.00				
2 TOTAL DURATION	(HRS) 0.00	0.00	2 TOTAL DURATIO	N (HRS)	0.00	0.00
3 PERCENT OF TOTAL	AL		3 PERCENT OF TO	TAL		
EXCESS EMISSION	NS 0.00%	0.00%	CEM DOWNTIME		0.00%	0.00%
	FOR OPACITY, RECORD	ALL TIMES IN MI	NUTES. FOR GASES, RECORD	D ALL TIMES IN H	OURS.	
% Total Excess Emissions =	Total Dura	ion of Excess Emis	ssions / (Total Operating Time - C	EM Downtime)		
% Total CEM Downtime =	CEM Down	ntime / Total Operat	ting Time			
	OZW BOW	time / rotal operat	ang rime			
NOTES:						
						
	М					
•		•	amiliar with the results, and that t	•	•	
valid.	g polical rooting that rul					
SUBMITTED BY:	See certification p	age at front (of report	DATE:		
SUDMITTED BT.				DATE.		

REPORTING QUARTER:		Fourth, 2018		AQD FILE #: #	0203 (AI ID 4	47)
EMISSION UNIT(S):		2-B-3				
POLLUTANT MONITORED:		SO2 lb/hr - 3 hour	rolling average			
	TOTAL					
DATE/TIME	DURATION (HRS)	MAX. EMISSIONS RATE	CAUSE/CORRECTIVE ACTIO)N		
a) Startup/Shutdown						
10/1/2018						
1/1/2019		No excess emissions.				
Total	0.00	-				
b) Control equipment						
10/1/2018						
1/1/2019		No excess emissions.				
Total	0.00					
c) Process problems						
10/1/2018						
1/1/2019		No excess emissions.				
Total	0.00	_				
d) Other known causes						
10/1/2018						
1/1/2019		No excess emissions.				
Total	0.00	•				
e) Unknown causes						
10/1/2018						
1/1/2019		No excess emissions.				
Total	0.00	_				
f) Soot blowing						
10/1/2018						
1/1/2019		No excess emissions.				
Total	0.00	-				
g) Fuel problems						
10/1/2018						
1/1/2019		No excess emissions.				
Total	0.00					

REPORTING QUARTER:		Fourth, 2018		OFILE#: #0203 (AI ID 4	147)
EMISSION UNIT(S):		2-B-3			
POLLUTANT MONITORED:		SO2 lb/mmbtu - 3 hou	r rolling average		
DATE/TIME	TOTAL DURATION (HRS)	MAX. EMISSIONS RATE	CAUSE/CORRECTIVE ACTION		
5,11	(,				
a) Startup/Shutdown 10/1/2018 1/1/2019		No excess emissions.			
Total	0.00				
b) Control equipment 10/1/2018 1/1/2019	0.00	No excess emissions.			
Total	0.00				
c) Process problems 10/1/2018 1/1/2019		No excess emissions.			
Total	0.00				
d) Other known causes 10/1/2018 1/1/2019 Total	0.00	No excess emissions.			
	0.00				
e) Unknown causes 10/1/2018 1/1/2019	_	No excess emissions.			
Total	0.00				
f) Soot blowing 10/1/2018 1/1/2019		No excess emissions.			
Total	0.00	-			
g) Fuel problems 10/1/2018 1/1/2019		No excess emissions			

Total

0.00

REPORTING QUARTER:		Fourth, 2018	AQD FILE # #0203 (AI ID 447)
EMISSION UNIT(S):		2-B-3, Fuel Gas Flow Rate	
POLLUTANT MONITORED:		S02	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
	(1110)	CAUSE/CONNECTIVE ACTION	
a) Monitor malfunction			
Total	0.00	-	
b) Non-monitor malfunction			
Total	0.00	-	
c) QA calibration			
	0.00	.	
	0.00		
d) Other known causes			
Total	0.00	-	
e) Unknown causes			
Total	0.00	-	

REPORTING QUARTER:		Fourth, 2018	AQD FILE # #0203 (AI ID 447)
EMISSION UNIT(S):		2-B-3, Natural Gas Flow Rate	
POLLUTANT MONITORED:		S02	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total	0.00	-	
b) Non-monitor malfunction			
Total	0.00	-	
c) QA calibration			
Total	0.00	-	
d) Other known causes			
		-	
Total	0.00		
e) Unknown causes			
Total	0.00	-	

AQD FILE#: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one):	SO2	NOx	co c	CO2 O2 TRS H2S HCL Opacity
	Other:	Flow		
				MONITOR
REPORTING QUARTER:	Fourth, 2018			MODEL: Fuel Gas Flow Rate/FG H2S CEM
FACILITY:				MFR:
St. Paul Park Re	efining Co. LLC			
				EMISSION LIMITS AND AVERAGING TIME:
EMISSION SUBJECT ITEM:	EQUI5			1.2 lb SO2/hr - 3 hr rolling avG.
				1.75 lb SO2/mmbtu - 3 hour rolling avg.
EMICCION UNIT(C)	No. 1 Crude Va	cuum heater		EMISSION BASIS: SIP for SO2 NAAOS
EMISSION UNIT(S):	1-B-5	Coull Heaces		EMISSION BASIS: SIP for SO2 NAAQS
	1-8-3			
ASSOCIATED ITEMS:	COMG7, EQUI163	, EQUI178,	STRU10	
				TOTAL OPERATING HOURS
				OF EMISSION UNIT: 1939
A. EMISSION DATA SUMMAI				B. CEM PERFORMANCE SUMMARY
1 DURATION OF EXCE		9)		1 DURATION OF CEM DOWNTIME DURING
T BOILK HOLL OF EXCE	LOO LIMICOIOTA (TITA	lb/hr	lb/mmbtu	SOURCE OPERATION (HRS)
a) Startup/Shutdown		0.00	0.00	SOURCE OF ERATION (TING)
b) Control equipment		0.00	0.00	a) Monitor malfunction 0.00
c) Process problems		0.00	0.00	b) Non-monitor malfunction 0.00
d) Other known cause	es	0.00	0.00	c) QA calibration 0.00
e) Unknown causes		0.00	0.00	d) Other known causes 0.00
f) Soot blowing		0.00	0.00	e) Unknown causes 0.00
g) Fuel problems		0.00	0.00	
2 TOTAL DURATION (F	HRS)	0.00	0.00	2 TOTAL DURATION (HRS) 0.00
3 PERCENT OF TOTAL	<u>.</u>			3 PERCENT OF TOTAL
EXCESS EMISSIONS	5	0.00%	0.00%	CEM DOWNTIME 0.00%
	FOR OPACITY, RE	CORD ALL TI	MES IN MINUTES	S. FOR GASES, RECORD ALL TIMES IN HOURS.
% Total Excess Emissions =		Total Duratio	n of Excess Emis	issions / (Total Operating Time - CEM Downtime)
% Total CEM Downtime =			me / Total Operat	· · · ·
		CEW DOWN	ine / Total Operal	aung nine
NOTES:				
If no exceedances: I certify tha	t the required analyse	s were made, t	hat I am familiar v	with the results, and that to the best of my knowledge there were no exceedances
during the reporting period. I c	ertify that I am familia	with the inform	nation in this repo	ort and that to the best of my knowledge the information is valid.
SUBMITTED BY:	See certificat	ion page at	front of rep	port DATE:

REPORTING QUARTER:		Fourth, 2018	AQD FILE#:	#0203 (AI ID_447)
EMISSION UNIT(S):		1-B-5		
POLLUTANT MONITORED:		S02 - lb/hr		
DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (lb/hr, 3-hour avg)	CAUSE/CORRECTIVE ACTION	
a) Startup/Shutdown 10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00			
b) Control equipment 10/1/2018				
1/1/2019		No excess emissions.		
. Total	0.00			
c) Process problems 10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00			
d) Other known causes 10/1/2018 1/1/2019		No excess emissions.		
Total	0.00	_140 0,0033 01113310113.		
e) Unknown causes 10/1/2018 1/1/2019		_No excess emissions.		
Total	0.00			
f) Soot blowing 10/1/2018 1/1/2019		_No excess emissions.		
Total	0.00			
g) Fuel problems 10/1/2018 1/1/2019		No excess emissions.		
Total	0.00	_		

REPORTING QUARTER:		Fourth, 2018	AQD FILE#: #0203 (AI ID 447)
EMISSION UNIT(S):		1-8-5	
POLLUTANT MONITORED:		S02 - lb/mmbtu	
DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (lb/mmBtu)	CAUSE/CORRECTIVE ACTION
DATE/TIME	(111(3)	(ID/IIIIIBIU)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	•	
c) Process problems			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	•	
e) Unknown causes			
10/1/2018			
1/1/2019	0.00	No excess emissions.	
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	-	
g) Fuel problems			
g) Fuel problems 10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	- 110 0,0000 011110010115.	
iolai	0.00		

REPORTING QUARTER:		Fourth, 2018	AQD FILE# #0203 (AI ID 447)
EMISSION UNIT(S):		1-B-5, Fuel Gas Flow Rate	
POLLUTANT MONITORED:		S02	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total	0.00	-	
b) Non-monitor malfunction			
Total	0.00		
c) QA calibration			
Total	0.00	-	
d) Other known causes			
Total	0.00	•	
e) Unknown causes			
T-4-1	0.00	_	

AQD FILE#: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one):	SO2	NOx	со	CO2	02	TRS	H2S	HCL	Opacity
	Other:	Flow		_	MONITO	ne.			
REPORTING QUARTER:	Fourth, 2	018		_	MODEL:		Fuel Gas	Flow Rate	/FG H2S CEM
FACILITY: St. Paul Park R	efining Co.	LLC			MFR:				
	011111111111111111111111111111111111111			-					
					EMISSIC	ON LIMIT	AND AVER	RAGE TIME:	
EMISSION SUBJECT ITEM:	EQUI6			_				olling avg.	
					-	1.75 15	SO2/mmb	tu - 3 hour	rolling avg.
EMISSION UNIT(S):	Crude Cha	rge Heater			EMISSIO	ON BASIS	}·	SIP for SO2	2 NAAOS
	Heater 1-	B-7		_				211 101 201	
	•	•		_					
ASSOCIATED ITEMS:	COMG7, CO	MG14, EQUI1	63, EQUI182	2, EQUI183	, STRU6	9			
					ODEDA	TING HOL	IDC OF FA	ALCOLON LINET	
					OPERA	IING HOU	JKS OF EN	MISSION UNIT: Total	
								1924	
							•		
A. EMISSION DATA SUMMA	RY				B. CEM	Performa	nce Sumn	nary	
DURATION OF EXC	ESS EMISSIO	NS (HRS)			1	DURATIO	N OF CEM	I DOWNTIME I	DURING
1			lb/hr	lb/mmbtu		SOURCE	OPERATIO	ON (HRS)	ļ.
a) Startup/Shutdown		-	0.00	0.00	4				Fuel Gas
b) Control equipment	t	-	0.00	0.00	7	•	r malfunctio		0.00
c) Process problems		-	0.00	0.00	1	,	onitor malfu	ınction	0.00
d) Other known caus	es	-	0.00	0.00	-	c) QA cali			0.00
e) Unknown causes		-	0.00	0.00	7		nown caus	es	0.00
f) Soot blowing		-	0.00	0.00		e) Unknov	wn causes		0.00
g) Fuel problems			0.00	0.00					
2 TOTAL DURATION (HRS)	_	0.00	0.00	2	TOTAL D	URATION ((HRS)	0.00
3 PERCENT OF TOTA	.L				3	PERCEN'	T OF TOTA	\L	
EXCESS EMISSION	S	-	0.00%	0.00%	-	CEM DOV	NNTIME		0.00%
	FOR OPACI	TY, RECORD A	ALL TIMES IN	MINUTES. I	FOR GAS	ES, REC	ORD ALL T	TIMES IN HOU	RS.
						-			
% Total Excess Emissions =		Total Duration	of Excess En	nissions / (To	otal Opera	ting Time	- CEM Dow	vntime)	
NOTES:									
•	•								
	-							•	
									ledge there were no exceedances
during the reporting period.	•			•		to the best	t of my know	wiedge the info	rmation is valid.
SUBMITTED BY:	See certi	fication pag	ge at front	of repor	rt.			DATE:	

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		EQUI6	
POLLUTANT MONITORED:		SO2 lb/hr	
	TOTAL		
	DURATION		
DATE/TIME	(HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	_110 0,0003 01113310113.	
b) Control equipment			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
d) Other length on the			
d) Other known causes 10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	_ NO excess emissions.	
1,2-12.1			
e) Unknown causes			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
a) Final muchlome			
g) Fuel problems 10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	_ 140 640655 61115510115.	
Diai	0.00		

REPORTING QUARTER:		Fourth, 2018	AQDFILE#: #0203 (AI ID 447)	
EMISSION UNIT(S):		EQUI6		
POLLUTANT MONITORED:		SO2 lb/mmbtu		
	TOTAL			
	DURATION			
DATE/TIME	(HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION	
-) Ot-st/Chutdana				
a) Startup/Shutdown 10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00	_ NO excess emissions.		
i otai	0.00			
b) Control equipment				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00	•		
c) Process problems				
10/1/2018				
1/1/2019		_No excess emissions.		
Total	0.00			
d) Other known causes				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00			
e) Unknown causes				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00			
f) Soot blowing				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00	•		
-) Firstablama				
g) Fuel problems 10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00	140 6,0655 61115510115.		
IUIAI	0.00			

REPORTING QUARTER:		Fourth, 2018	AQD FILE # #0203 (AI ID 447)
EMISSION UNIT(S):		Heater 1-B-7	
POLLUTANT MONITORED:		Fuel Gas Flow Rate	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction	· · · · · · · · · · · · · · · · · · ·		
Total	0.00	-	
b) Non-monitor malfunction			
Total	0.00	-	
c) QA calibration			
Total	0.00	-	
d) Other known causes			
Total	0.00	-	
e) Unknown causes			
Total .	0.00		

AQD FILE#: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one):	SO2	NOx	co c	02 02	TRS	H2S	HCL	Opacity
	Other:	Flow						
				MONIT	OR			
REPORTING QUARTER:	Fourth, 2018			MODE	_:	Fuel Gas	Flow Rat	e/FG H2S CEM
FACILITY:				MFR:				
St. Paul Park Rei	fining Co. LLC							
				EMISS	ION LIMIT	S AND AVER	RAGING TIM	IE:
EMISSION SUBJECT ITEM:	EQUI7							olling avg.
					1.75 lk	SO2/mmbt	u - 3 hou	r rolling avg.
EMISSION UNIT(S):	Distillate Unif	iner		EMISS	ION BASIS	S: s	SIP for S	O2 NAAQS
	29-B-1, 29-B-2					_		
ASSOCIATED ITEMS:	COMG7, EQUI163,	EQUI184,	STRU68					
				TOTAL	ODEDATI	NG HOURS		
					ISSION U		1894	
				OI LIVI	1001011 01	-	1034	
A. EMISSION DATA SUMMAR	Y			B. CEN	PERFOR	MANCE SUN	MARY	
1 DURATION OF EXCES	SS EMISSIONS (HRS)	1				-		
		lb/hr	lb/mmbtu	1	DURATIO	ON OF CEM [OOWNTIME	DURING
a) Startup/Shutdown		0.00	0.00		SOURCE	OPERATIO	N (HRS)	
b) Control equipment		0.00	0.00		a) Monito	r malfunction		0.00
c) Process problems		0.00	0.00		b) Non-m	ionitor malfun	ction	0.00
d) Other known causes	3	0.00	0.00		c) QA ca	libration		0.00
e) Unknown causes		0.00	0.00		d) Other	known causes	s	0.00
f) Soot blowing		0.00	0.00		e) Unkno	wn causes		0.00
g) Fuel problems		0.00	0.00					
2 TOTAL DURATION (HI	RS)	0.00	0.00	2	TOTAL D	URATION (H	IRS)	0.00
3 PERCENT OF TOTAL				3	PERCEN	IT OF TOTAL		
EXCESS EMISSIONS		0.00%	0.00%		CEM DO	WNTIME		0.00%
	FOR OPACITY, REC	CORD ALL TIM	IES IN MINUTES	. FOR GAS	ES, RECC	ORD ALL TIM	ES IN HOU	RS.
% Total Excess Emissions =		Total Duratio	n of Excess Emis	sions / (Total	l Operating	Time - CEM	Downtime)	
				-	, operaning	, ,,,,,,	DOM: (allino)	
% Total CEM Downtime =		CEIVI DOWNTII	me / Total Operat	ng rime				
NOTES:								
If no evegedences: I cortife that	the required analysis:	wara mada 44-	at I am familiar · · ·	h tha raa!+-	and that	ta tha bast se	may be and	Igo there were no succeedence
If no exceedances: I certify that during the reporting period. I ce								
SUBMITTED BY:	See certificati	on page at	front of rep	ort		_ [DATE:	

REPORTING QUARTER:		Fourth, 2018	AQD FILE# #0203 (AI ID 447)
EMISSION UNIT(S):		29-B-1, 29-B-2	
POLLUTANT MONITORED:		S02 - lb/hr	
	TOTAL DURATION		
DATE/TIME	(HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown 10/1/2018			
1/1/2019 _ Total	0.00	No excess emissions.	
Total	0.00		
b) Control equipment 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00	- 140 0,0003 01111310113.	
c) Process problems 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00	No excess emissions.	
d) Other known causes 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.	
e) Unknown causes 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00		
f) Soot blowing 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.	
g) Fuel problems 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.	

REPORTING QUARTER:		Fourth, 2018	AQD FILE#: #0203 (AI ID 447)
EMISSION UNIT(S):		29-B-1, 29-B-2	
POLLUTANT MONITORED:		S02 - 1b/mmbtu	<u></u>
	TOTAL DURATION		
DATE/TIME	(HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	-	
13.00.404			
b) Control equipment			
10/1/2018		No excess emissions.	
1/1/2019	0.00	_ No excess emissions.	
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	-	
d) Other known causes			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	140 626633 61113316113.	
e) Unknown causes			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
)			
g) Fuel problems			
10/1/2018 1/1/2019		No excess emissions.	
Total	0.00	- 140 640635 61113310113.	
Iolai	0.00		

REPORTING QUARTER:		Fourth, 2018	AQD FILE# #0203 (AI ID 447)
EMISSION UNIT(S):		29-B-1, 29-B-2 Fuel Gas Flow Rate	
POLLUTANT MONITORED:		802	
	TOTAL DURATION		
DATE/TIME	(HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total	0.00	-	
b) Non-monitor malfunction			
Total	0.00		
c) QA calibration			
Total	0.00	-	
d) Other known causes			
Total	0.00		
10001	3.00		
e) Unknown causes			
Total	0.00	-	

AQD FILE #: #0203 (AI ID 447)

POLLUTANT (circle one):	SO2	NOx	co	CO2	O2	TRS	H2S	HCL	Opacity
	Other:	Flow							
					MONITO				
REPORTING QUARTER:	Fourth, 2018	3		-	MODEL:		Fuel Gas	Flow Rat	te/FG H2S CEM
FACILITY:					MFR:				
St. Paul Park Re	fining Co. LL	c			-				
				•					
				•	EMISSIC	N LIMIT	S AND AVE	RAGING TI	ME:
EMISSION SUBJECT ITEM:	EQUI8			_		1.95 1	s02/hr -	- 3 hr ro	lling average
						1.75 1	o SO2/mmlbt	tu - 3 ho	ur rolling avg.
EMICOION HAUT(O).	Naphtha Unif	iner West	or.		EMICOLO		0.		
EMISSION UNIT(S):	3-B-1, 3-B-2		ET.	-	EMISSIC	N BAŞI	o: <u>:</u>	SIP for S	OZ NAAQS
	3-B-1, 3-B-2	i, 3~B-3		-					
ASSOCIATED ITEMS:	COMG9, COMG7	. EOUI163	. EOUI185.	STRU1	9				
	33.107 / 33.101	, 202220	/		•				
					TOTAL C	PERAT	ING HOURS		
					OF EMIS	SION U	NIT:	1752	
					,				
A. EMISSION DATA SUMMAR							RMANCE SU		
1 DURATION OF EXCE	SS EMISSIONS (. ,			l		ON OF CEM		E DURING
-> 01410144		lb/hr	lb/mmbtu		`	SOURCE	OPERATIO	ON (HRS)	
a) Startup/Shutdown		0.00	0.00	-					
b) Control equipment		0.00	0.00	-		•	or malfunction		0.00
c) Process problems		0.00	0.00	-	1	•	nonitor malfu	nction	0.00
d) Other known cause:	S	0.00	0.00	•	1	c) QA ca			0.00
e) Unknown causes		0.00	0.00	•	l	•	known cause	es	0.00
f) Soot blowing		0.00	0.00		•	e) Unkno	wn causes		0.00
g) Fuel problems		0.00	0.00		1				
2 TOTAL DURATION (H	•	0.00	0.00	-	l		DURATION (I	•	0.00
3 PERCENT OF TOTAL							NT OF TOTA	L	
EXCESS EMISSIONS	3	0.00%	0.00%	-	'	CEM DO	WNTIME		0.00%
	FOR OPACITY,	RECORD AL	L TIMES IN M	INUTE	S. FOR C	GASES,	RECORD A	LL TIMES I	N HOURS.
% Total Excess Emissions =		Total Duration	on of Excess E	missio	ns / (Total	Operation	na Time - CE	M Downtim	e)
% Total CEM Downtime =							·· · · · · · · · · · · · · · · · · · ·		-,
		CENI DOWN	time / Total Op	eraung	inne				
NOTES:									
				_					
							·····		
If no exceedances: I certify that exceedances during the reporting valid.									
SUBMITTED BY:	See certific	ation page	e at front	of re	port		_	DATE:	

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		3-B-1, 3-B-2, 3-B-3	
POLLUTANT MONITORED:		S02 - lb/hr	
	TOTAL		
	DURATION		
DATE/TIME	(HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Ctartur (Chutdayan			
a) Startup/Shutdown 10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	_ NO excess emissions.	
(Ola)	0.00		
b) Control equipment			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
, otal	0.00		
c) Process problems			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019		No excess emissions.	
Total _	0.00	_	
f) Soot blowing			
10/1/2018			
1/1/2019 _		No excess emissions.	
Total	0.00		
\ F 1 11			
g) Fuel problems			
10/1/2018		Maria and a second	
1/1/2019	2.00	No excess emissions.	
Total	0.00		

REPORTING QUARTER:		Fourth, 2018	AQD FILE # #0203 (AI ID 447)
EMISSION UNIT(S):		3-B-1, 3-B-2, 3-B-3	
POLLUTANT MONITORED:		S02 - lb/mmbtu	
	TOTAL DURATION		
DATE/TIME	(HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00		
b) Control equipment 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00	-	
c) Process problems 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.	
d) Other known causes 10/1/2018 1/1/2019 _	0.00	No excess emissions.	
Total	0.00		
e) Unknown causes 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.	
f) Soot blowing 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00	<u> </u>	
g) Fuel problems 10/1/2018 1/1/2019 _		_ No excess emissions.	
Total	0.00		

CONTINUOUS EMISSION MONITOR DOWNTIME REPORT

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AT ID 447)
EMISSION UNIT(S):		3-B-1,2,3 Fuel Gas Flow Rate	MARK A STORM
POLLUTANT MONITORED:		S02	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total	0.00	_	
b) Non-monitor malfunction			
Total	0.00	_	
c) QA calibration			
Total	0.00	_	
d) Other known causes			
Total	0.00	_	
e) Unknown causes			
Total	0.00	_	

AQD FILE #: #0203 (AI ID 447)

POLLUTANT (circle one):	SO2	NOx Flow	CO	CO2	O2	TRS	H2S	HCL	Opacity	
	Other	FIOW		-	MONITO	R				
REPORTING QUARTER:	Fourth, 2018			-	MODEL:		Fuel Gas	Flow Rate	e/FG H2S CEM	
FACILITY:					MFR:					
St. Paul Park R	efining Co. LL	С			_					
				-	EMICCIO	. N. 1 18.83	C AND AVE	RAGING TIM	r.	
EMISSION SUBJECT ITEM:	EOUI 9								olling average	
			,	-					r rolling avg.	
EMISSION UNIT(S):	Platformer Ch	arge Heate	r		EMISSIC	N BASI	ς	SIP for SO	2 NAZOS	
2.11.001011 0111 1(0).	3-B-4			-	LIVIIOOIO	14 57 (0)	<u>.</u>	711 101 50	Z RANGO	
				•						
ASSOCIATED ITEMS:	COMG9, COMG7,	EQUI163,	EQUI186, ST	rru67	-					
					TOTAL O	OCD AT	INC HOURS			
					OF EMIS		ING HOURS NIT [.]	1846		
					0, 2,,,,,	0101101	_	1010		
A. EMISSION DATA SUMMA	ARY				B. CEM I	ERFOR	MANCE SU	MMARY		
1 DURATION OF EXC	ESS EMISSIONS (HRS)			1 .[URATIO	ON OF CEM	DOWNTIME	DURING	
		lb/hr	lb/mmbtu		5	SOURCE	OPERATIO	N (HRS)		
a) Startup/Shutdown		0.00	0.00	-	i					
b) Control equipmen		0.00	0.00	-		•	r malfunctior		0.00	
c) Process problems		0.00	0.00	•		,	ionitor malfui	nction _	0.00	
d) Other known caus	ses	0.00	0.00		Į.) QA cal			0.00	
e) Unknown causes		0.00	0.00	_	0	i) Other	known cause	es _	0.00	
f) Soot blowing		0.00	0.00	_	6	e) Unkno	wn causes	_	0.00	
g) Fuel problems		0.00	0.00	_						
2 TOTAL DURATION	(HRS)	0.00	0.00		2 7	OTAL D	URATION (I	HRS)	0.00	
3 PERCENT OF TOTA	\L			-	3 F	PERCEN	IT OF TOTAL	_		
EXCESS EMISSION	IS	0.00%	0.00%				WNTIME	_	0.00%	
	FOR OPACITY, R	ECORD ALL	TIMES IN MIN	UTES.	FOR GA	SES, R	ECORD ALL	TIMES IN H	OURS.	
% Total Excess Emissions =		Total Duratio	on of Excess E	minnin	an ((Tetal	Operation	n Time CE	M Downtines		
					•	Operatii	ig fille - OL	IVI DOWNTHINE	•	
% Total CEM Downtime =		CEMIDOWIN	ime / Total Ope	eraung	ime					
NOTES:			······································							
		·			_					
			· ·					···		
If no exceedances: I certify the during the reporting period. I										o exceedances
SUBMITTED BY:	See certifica						•	DATE:	The second of the second of	
		 					-	_		

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		3-B-4	
POLLUTANT MONITORED:		S02 - lb/hr	
	TOTAL		
DATE/TIME DU	RATION (HE	RS) MAX. CONCENTRATION CAUSE	/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
g) Fuel problems			
10/1/2018			
1/1/2019		No excess emissions.	
Total —	0.00	· 	

REPORTING QUARTER:		Fourth, 2018	AQD FILE #	#: #0203 (AI ID 447)	_
EMISSION UNIT(S):		3-B-4		_	
POLLUTANT MONITORED:		S02 - 1b/mmbtu	_		
DATE/TIME DU	TOTAL) MAX. CONCENTRATION CAU	ISE/CORRECTIVE ACTION		
DATE TIME DO	TOTAL CITICO	y WOOL CONCENTION CAL	DOL/OURILL AUTION		
a) Startup/Shutdown 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.			
b) Control equipment 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.			
c) Process problems 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.			
d) Other known causes 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.			
e) Unknown causes 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.			
f) Soot blowing 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.			
g) Fuel problems 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.			

CONTINUOUS EMISSION MONITOR DOWNTIME REPORT

REPORTING QUARTER:		Fourth, 2018	AQD FILE # #0203 (AI ID 447)
EMISSION UNIT(S):		3-B-4 Fuel Gas Flow Rate	
POLLUTANT MONITORED:		<u>S02</u>	
DATE/TIME	TOTAL DURATION (HRS	S) CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total	0.00	_	
b) Non-monitor malfunction			
Total	0.00	_	
c) QA calibration			
Total	0.00	_	
d) Other known causes			
Total	0.00	_	
e) Unknown causes			
Total	0.00	_	

AQD FILE #: #0203 (AI ID 447)

POLLUTANT (circle one):	SO2 Other:	NOx Flow	co	CO2	O2	TRS	H2S	HCL	Opacity	
REPORTING QUARTER:	Fourth, 2018				MONITOR MODEL:	!	Fuel Gas	Flow Rate	/FG H2S CEM	
FACILITY: St. Paul Park R	Refining Co. LI	LC			MFR:			·		
EMISSION SUBJECT ITEM:	EQUI10				1	.68 lk	so2/hr -		E: ling average r rolling avg.	
EMISSION UNIT(S):	Platformer in 3-B-7	iterheater	#1		EMISSION	N BASIS	S: <u>s</u>	SIP for SO	2 NAAQS	
ASSOCIATED ITEMS:	COMG9, COMG7,	EQUI163,	EQUI187, S	rRU66						
				=	TOTAL OF		ING HOURS NIT:	1821		·
A. EMISSION DATA SUMMA				_	B. CEM P	ERFOR	MANCE SU	MMARY		
1 DURATION OF EXC	ESS EMISSIONS	(HRS) lb/hr	lb/mmbtu		4.0	UDATIO	ON OF CEM	DOWNTIME	DUBING	
a) Startup/Shutdown	•	0.00	0.00		1		OPERATIC		DURING	
b) Control equipmen		0.00	0.00		,		r malfunction	• •	0.00	
c) Process problems		0.00	0.00				onitor malfur	_	0.00	
d) Other known caus		0.00	0.00		l '		libration		0.00	
e) Unknown causes		0.00	0.00		1 ′		known cause		0.00	
f) Soot blowing		0.00	0.00				wn causes	_	0.00	
g) Fuel problems		0.00	0.00		-/					
2 TOTAL DURATION	(HRS)	0.00	0.00		2 TO	OTAL D	URATION (H	HRS)	0.00	
3 PERCENT OF TOTA					1		IT OF TOTAL	· · -		
EXCESS EMISSION		0.00%	0.00%		1		WNTIME	_	0.00%	
	FOR OPACITY, F	RECORD ALL	TIMES IN MIN	UTES	. FOR GA	SES, R	ECORD ALL	TIMES IN H	OURS.	
% Total Excess Emissions =		Total Duration	n of Excess En	nissior	ns / (Total C	Operatin	ng Time - CE	M Downtime)	1	
% Total CEM Downtime =		CEM Downtii	me / Total Ope	rating	Time					
NOTES:										
If no exceedances: I certify the during the reporting period. I										
SUBMITTED BY:	See certifica	tion page	at front o	f rep	ort		_ (DATE: _		

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		3-B-7	
POLLUTANT MONITORED:		S02 - lb/hr	
	TOTAL DURATION		
DATE/TIME	(HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	_	
c) Process problems			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	-	
d) Other known causes			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	-	
e) Unknown causes			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	_	
g) Fuel problems			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	=	

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		3-B-7	
POLLUTANT MONITORED:		SO2 - lb/mmbtu	
DATE/TIME	TOTAL DURATION (HRS)	MAX CONCENTRATION CAU	SE/CORRECTIVE ACTION
a) Startup/Shutdown 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.	
b) Control equipment 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.	
c) Process problems 10/1/2018 1/1/2019 Total	0.00	No excess emissions.	
d) Other known causes 10/1/2018 1/1/2019 Total	0.00	_ No excess emissions.	
e) Unknown causes 10/1/2018 1/1/2019 Total	0.00	No excess emissions.	
f) Soot blowing 10/1/2018 1/1/2019 Total	0.00	_ No excess emissions.	
g) Fuel problems 10/1/2018 1/1/2019 _ Total	0.00	_ No excess emissions.	

CONTINUOUS EMISSION MONITOR DOWNTIME REPORT

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		3-B-7 Fuel Gas Flow Rate	
POLLUTANT MONITORED:		S02	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total	0.00	_	
b) Non-monitor malfunction			
Total	0.00	_	
c) QA calibration			
Total	0.00	_	
d) Other known causes			
Total .	0.00	_	
e) Unknown causes			
Total -	0.00		

AQD FILE #: #0203 (AI ID 447)

POLLUTANT (circle one):	SO2	NOx	co	CO2	02	TRS	H2S	HCL	Opacity	
	Other:	Flow				_				
REPORTING QUARTER:	Fourth, 2018				MONITO MODEL:	R	Fuel Gas	Flow Rat	e/FG H2S CEM	
FACILITY:					MFR:					
St. Paul Park R	efining Co. LL	<u>c</u>	·		_	_				
							S AND AVE			
EMISSION SUBJECT ITEM:	EQUI11								rolling avg.	
					_	L.75 IX	SO2/mmbt	u - 3 noi	ir rolling avo	<u> </u>
EMISSION UNIT(S):	Platformer In	terheater #2	2		EMISSIC	N BASI	S: <u>.s</u>	SIP for SO	O2 NAAQS	
	3-B-8									
400001475017540										
ASSOCIATED ITEMS:	COMG9, COMG7,	EQUI163, EQ	QUI188, STR	1065	-					
					TOTAL C	PERAT	ING HOURS			
					OF EMIS			1822		
							_			
A. EMISSION DATA SUMMA	RY				B. CEM	PERFOR	RMANCE SU	MMARY		
1 DURATION OF EXC	ESS EMISSIONS (=								
		lb/hr	lb/mmbtu		ļ		ON OF CEM		E DURING	
a) Startup/Shutdown		0.00	0.00		į		OPERATIO			
b) Control equipment	· ·	0.00	0.00			a) Monitor malfunction 0.00 b) Non-monitor malfunction 0.00	}			
c) Process problems d) Other known caus	00	0.00	0.00			•		nction _	0.00	
e) Unknown causes	es	0.00	0.00		l .	c) QA cal	iibration known cause	- -	0.00	
f) Soot blowing		0.00	0.00		l	•	wn causes	_	0.00	
g) Fuel problems		0.00	0.00		`) Olikilo	WII Causes	-	0.00	
2 TOTAL DURATION (HRS)	0.00	0.00		2 -	TOTAL D	URATION (I	HRS)	0.00	
3 PERCENT OF TOTA					l		IT OF TOTAL	· · · · · -		
EXCESS EMISSION	IS	0.00%	0.00%		(CEM DO	WNTIME		0.00%	
	FOR OPACITY, R	ECORD ALL TI	MES IN MINU	TES.	FOR GA	SES, RE	CORD ALL	TIMES IN H	IOURS.	
% Total Excess Emissions =		Total Duration	of Excess Em	issio	ns / (Total	Operatir	ng Time - CE	M Downtime	e)	
% Total CEM Downtime ≠		CEM Downtim	ne / Total Oper	ating	Time					
NOTES:										
					-					
If no exceedances: I certify the during the reporting period. Is										
SUBMITTED BY:	See certificat						-	DATE:		
SUDIMITIED DT.		page at					- '			

REPORTING QUARTER:	_1	Fourth, 2018	AQD FILE #:	#0203 (AI ID 447)	
EMISSION UNIT(S):	<u>.</u>	3-B-8		-	
POLLUTANT MONITORED:	<u>. 1</u>	502 - 1b/hr			
	TOTAL				
DATE/TIME DURA	ATION (HRS) I	MAX. CONCENTRATION CAUSE/	CORRECTIVE ACTION		
a) Startup/Shutdown					
10/1/2018					
1/1/2019		No excess emissions.			
Total	0.00				
b) Control equipment					
10/1/2018					
1/1/2019		No excess emissions.			
Total	0.00				
c) Process problems					
10/1/2018					
1/1/2019	1	lo excess emissions.			
Total	0.00				
d) Other known causes					
10/1/2018					
1/1/2019	!	lo excess emissions.			
Total	0.00				
e) Unknown causes					
10/1/2018					
1/1/2019	1	lo excess emissions.			
Total	0.00				
f) Soot blowing					
10/1/2018					
1/1/2019	1	lo excess emissions.			
Total	0.00				
g) Fuel problems					
10/1/2018					
1/1/2019	r	lo excess emissions.			
Total	0.00				

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: _#0203 (A:	I ID 447)
EMISSION UNIT(S):		3-B-8		
POLLUTANT MONITORED:		S02 - lb/mmbtu	_	
DATE/TIME DUR	TOTAL ATION (HRS)	MAX. CONCENTRATION CA	JSE/CORRECTIVE ACTION	
a) Startup/Shutdown 10/1/2018 1/1/2019		No excess emissions.		
Total	0.00			
b) Control equipment 10/1/2018 1/1/2019		No excess emissions.		
Total	0.00			
c) Process problems 10/1/2018 1/1/2019 Total	0.00	No excess emissions.		
d) Other known causes 10/1/2018 1/1/2019 Total	0.00	No excess emissions.		
e) Unknown causes 10/1/2018 1/1/2019 Total	0.00	No excess emissions.		
f) Soot blowing 10/1/2018 1/1/2019 Total	0.00	No excess emissions.		
g) Fuel problems 10/1/2018 1/1/2019		No excess emissions		

Total

0.00

CONTINUOUS EMISSION MONITOR DOWNTIME REPORT

REPORTING QUARTER:		Fourth, 2018	AQD FILE # #0203 (AI ID 447)
EMISSION UNIT(S):		3-B-8 Fuel Gas Flow Rate	
POLLUTANT MONITORED:		S02	
DATE/TI M E	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total	0.00	-	
b) Non-monitor malfunction			
Total	0.00	-	
c) QA calibration			
Total	0.00	-	
d) Other known causes			
Total	0.00	-	
e) Unknown causes			
Total	0.00	-	

AQD FILE #: #0203 (AI ID 447)

POLLUTANT (circle one):	SO2 Other:	NOx Flow	co	CO2	O2	TRS	H2S	HCL	Opacity
REPORTING QUARTER:	Fourth, 2018				MONITOR MODEL:	2	Fuel Gas	Flow Rate	e/FG H2S CEM
FACILITY: St. Paul Park Re	efining Co. LL	2		-	MFR:				
EMISSION SUBJECT ITEM:	EQUI12			-	0	.76 lb		hour ro	lling average rolling avg.
EMISSION UNIT(S):	Desulfurizer Heater 34-B-1			- -	EMISSION	N BASIS	: <u>s</u>	SIP for SO	D2 NAAQS
ASSOCIATED ITEMS:	COMG7, COMG14	, EQUI163,	EQUI189, MR	029, STRU64	_				
							PERATING H SION UNIT:	OURS	1959
A. EMISSION DATA SUMMA	RY				B. CEMP	erforma	nce Summa	ry	
DURATION OF EXC	ESS EMISSIONS	(HRS)			1 D	URATIC	N OF CEM D	OWNTIME	DURING
1			lb/hr	lb/MMBtu	s	OURCE	OPERATION	i (HRS)	
a) Startup/Shutdown			0.00	0.00	4				
b) Control equipmen		-	0.00	0.00	7 '		r malfunction		0.00
c) Process problems			0.00	0.00	7		onitor malfund	ction	0.00
d) Other known caus	es	•	0.00	0.00	٦ .	QA cali			0.00
e) Unknown causes			0.00	0.00			nown causes	3	6.00
f) Soot blowing g) Fuel problems		-	0.00	0.00	۳.	Olikilov	vn causes		0.00
2 TOTAL DURATION	'LIDC'		0.00	0.00	, ₇	OTAL D	URATION (HE	DC)	6.00
3 PERCENT OF TOTAL	'	-	0.00	0.00	7		T OF TOTAL	K3)	6.00
EXCESS EMISSION			0.00%	0.00%	3		WNTIME		0.31%
	FOR OPACITY,	RECORD ALL	TIMES IN MINI	UTES. FOR G	ASES, REC	ORD AL	L TIMES IN	HOURS.	
% Total Excess Emissions =		Total Duration	n of Excess Em	issions / (Total	Operating ⁻	Time - C	EM Downtime	9)	
% Total CEM Downtime = NOTES:		CEM Downtin	ne / Total Oper	ating Time					
							· · · · · · · · · · · · · · · · · · ·	.	
									e there were no exceedances during
the reporting period. I certify SUBMITTED BY:	that I am familiar v See certifica		•		ne best of m	ny knowi	-	rmation is va DATE:	àlid.
SUBMITTED BY:	Dee Certifice	.c.on page a	C LIGHT OI				– '	JAIE.	

REPORTING QUARTER:		Fourth, 2018		AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		Heater 34-B-1		_
POLLUTANT MONITORED:		SO2 lb/hr		
DATEITIME	TOTAL DURATION	MAY CONCENTRATION	CAUCE/CORRECTIVE ACTION	
DATE/TIME	(HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION	
a) Startup/Shutdown 10/1/2018 1/1/2019 _ Total	0.00	_ No excess emissions.		
b) Control equipment 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
c) Process problems 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
d) Other known causes 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
e) Unknown causes 10/1/2018 1/1/2019 _ Total	0.00	_ No excess emissions.		
f) Soot blowing 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
g) Fuel problems 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		

REPORTING QUARTER:		Fourth, 2018		AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		Heater 34-B-1		<u>-</u>
POLLUTANT MONITORED:		SO2 lb/mmbtu		
DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION	
·	(1.1.0)	WAL GONOLITHATION	CAGGE/GOTTIE AGTION	
a) Startup/Shutdown 10/1/2018 1/1/2019 _ Total	0.00	_ No excess emissions.		
b) Control equipment 10/1/2018 1/1/2019_	0.00	_No excess emissions.		
Total	0.00			
c) Process problems 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.		
d) Other known causes 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.		
e) Unknown causes 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.		
f) Soot blowing 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
g) Fuel problems 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		

CONTINUOUS EMISSION MONITOR DOWNTIME REPORT

REPORTING QUARTER:		Fourth, 2018	AQD FILE # #0203 (AI ID 447)
EMISSION UNIT(S):		Heater 34-B-1	
POLLUTANT MONITORED:		Fuel Gas Flow Rate	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total –	0.00	_	
b) Non-monitor malfunction			
Total –	0.00	_	
c) QA calibration			
Total -	0.00	_	
d) Other known causes 12/14/18 14:00	0.00		
12/14/18 20:00 _ Total	6.00 6.00	_Communications issue.	
e) Unknown causes			
Total _	0.00	_	

AQD FILE #: #0203 (AI ID 447)

POLLUTANT (circle one):	SO2	NOx	co	CO2	O2	TRS	H2S	HCL	Opacity
	Other:	Flow		_	MONUTO	ND.			
REPORTING QUARTER:	Fourth, 2	018			MONITO MODEL:		Fuel Gas	Flow Rate	e/FG H2S CEM
FACILITY:					MFR:				
St. Paul Park F	efining Co	LLC		<u></u>	_				
				-					
							AND AVERA		
EMISSION SUBJECT ITEM:	EQUI13			_	-				olling avg.
					-	1.75 10	SO2/mmbt	u - 3 nou	r rolling avg.
EMISSION UNIT(S):	Hot Oil H	eater			EMISSIC	ON BASIS	: :	SIP for S	O2 NAAQS
	Heater 34	-B-2		_			-		
ASSOCIATED ITEMS:	COMC7 CO	MG14, EQUI16	2 POIIT190	בי ודוומו	CTDIIC A				
AGGOCIATED ITEMO.	cond', con	4614, EQUITO	3, EQUITIO	, BQUILDI,	211004				
					OPERAT	ring hou	JRS OF EM	ISSION UNI	Γ:
								Total	
							-	1967	
A. EMISSION DATA SUMMA	ARY				B CEM	Performa	nce Summ	an/	
DURATION OF EXC		ONS (HRS)						DOWNTIME	DURING
1		, ,	lb/hr	lb/mmbtu			OPERATIO		
a) Startup/Shutdowr	1	_	0.00	0.00	_				
b) Control equipmer	ıt	_	0.00	0.00	1	a) Monito	r malfunctio	n	0.00
c) Process problems	3	_	0.00	0.00	4	b) Non-m	onitor malfu	nction	0.00
d) Other known caus	ses	_	0.00	0.00		c) QA cali	bration		0.00
e) Unknown causes		_	0.00	0.00	-1	•	known cause	es	0.00
f) Soot blowing		_	0.00	0.00	١ ٠	e) Unknov	wn causes	,	0.00
g) Fuel problems		-	0.00	0.00	_				
2 TOTAL DURATION	(HRS)	_	0.00	0.00	2	TOTAL D	URATION (I	HRS)	0.00
3 PERCENT OF TOTA					1		T OF TOTA	L	
EXCESS EMISSION	IS	-	0.00%	0.00%	-	CEM DO	NNTIME		0.00%
	FOR OPACI	TY, RECORD A	LI TIMES IN I	MINUTES FOR	CASES	PECOPI) ALL TIME	S IN HOLIRS	
	FOR OPAGE	I I, RECORD A	LE TIMES IN I	VIINOTES. FOR	N GAGES,	RECORL	JALL HIVE	3 IN HOURS	o.
% Total Excess Emissions =		Total Duration	of Excess Em	nissions / (Total	Operating	a Time - C	EM Downtin	me)	
				•	- p			,	
NOTES: There was zero	fuel oil r	untime duri	ng the quar	rter.					
					· · · · · · · · · · · · · · · · · · ·				
						-			
								·····	
If no exceedances: I certify to during the reporting period. I									vledge there were no exceedances prmation is valid.
SUBMITTED BY:	See certi	fication pag	e at front	of report			_	DATE:	

REPORTING QUARTER:		Fourth, 2018		AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		Heater 34-B-2		-
POLLUTANT MONITORED:		S02 lb/hr		
	TOTAL			
DATE/TIME	DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION	
DATE/TIME	(IIKS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION	
a) Startup/Shutdown				
10/1/2018				
1/1/2019 _		No excess emissions.		
Total	0.00			
b) Control equipment				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00	-		
c) Process problems				
10/1/2018		No success surjections		
1/1/2019 _ Total	0.00	No excess emissions.		
Iotai	0.00			
d) Other known causes				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00	-		
e) Unknown causes				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00	_110 0,0000 011110010110.		
f) Soot blowing				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00			
g) Fuel problems				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00			

REPORTING QUARTER:		Fourth, 2018		AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		Heater 34-B-2		-
POLLUTANT MONITORED:		SO2 lb/mmbtu		
DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION	
a) Startup/Shutdown				
10/1/2018 1/1/2019		No excess emissions.		
Total	0.00	_ NO excess emissions.		
b) Control equipment 10/1/2018 1/1/2019		No excess emissions.		
Total	0.00	-		
c) Process problems 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.		
d) Other known causes 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.		
e) Unknown causes 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
f) Soot blowing 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
g) Fuel problems 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		

CONTINUOUS EMISSION MONITOR DOWNTIME REPORT

REPORTING QUARTER:		Fourth, 2018	AQDFILE#: #0203 (AI ID 447)
EMISSION UNIT(S):		Heater 34-B-2	
POLLUTANT MONITORED:		Fuel Gas Flow Rate	
DATE/TIME	TOTAL DURATION (HRS)	CALISE/CORRECTIVE ACTION	
DATE/TIME	(HKS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total	0.00	-	
b) Non-monitor malfunction			
Total	0.00	-	
c) QA calibration			
Total	0.00	-	
d) Other known causes			
Total	0.00	-	
e) Unknown causes			
Total	0.00	-	

AQD FILE #: #0203 (AI ID 447)

POLLUTANT (circle one):	SO2 Other:	NOX	со	CO2 C	TRS	H2S	HCL	Opacity
REPORTING QUARTER:	Fourth, 201	18		_	R: ABB	-		
TE OTTING QUARTER.	1001011, 20					ance Optio	na Limas 1	.1
FACILITY:								
St. Paul Park Re	fining Co. :	LLC						
				- EN	AISSION LIN	IIT AND AVI	ERAGE TIME	≣:
<u> </u>				=	0.050	lbs/mmbtu	- 365 day	y rolling average
EMISSION SUBJECT ITEM:	EQUI14			_				
				E	AISSION BA	SIS:		
EMISSION UNIT(S):	Heater 32-1	3-1		_	Consen	t Decree		
ASSOCIATED ITEMS:								
				-				
				TO	TAL OPER	ATING HOU	JRS	
				O	EMISSION	UNIT:	1931	
A. EMISSION DATA SUMM	ADV			اما	CEM DEDE	ODMANCE	SUMMARY	
1 DURATION OF EXCE		2 /LIDS)		Б.	CENTPERF	ORMANCE	SUMMART	
DONATION OF EACE	LOG LIVINGSICIA	365 day			1 DURATI	ON OF CEN	NTNWOO N	E DURING
a) Startup/Shutdown		0.00				E OPERATI		E BOINING
b) Control equipment		0.00				or malfunction	•	0.00
c) Process problems		0.00				nonitor malfu		0.00
d) Other known cause	es	0.00			c) QA ca			0.00
e) Unknown causes	-	0.00			•	known caus	es .	6.00
f) Soot blowing		0.00			•	own causes		0.00
g) Fuel problems		0.00			,		•	
2 TOTAL DURATION (I	HRS)	0.00			2 TOTAL I	DURATION	(HRS)	6.00
3 PERCENT OF TOTAL	*				3 PERCENT OF TOTAL			
EXCESS EMISSIONS	3	0.00%			CEM DO	OWNTIME		0.31%
	FOR OPACITY	Y, RECORD AL	L TIMES	TUNIM NI	ES. FOR G	ASES, REC	ORD ALL TI	MES IN HOURS.
% Total Excess Emissions =		Total Duration	of Exces	s Emissio	ns / (Total O	perating Tim	ne - CEM Do	wntime)
% Total CEM Downtime =		CEM Downtim	ne / Total	Operating	Time			
NOTES:								
<u>o.</u>								
				,				
If no exceedances: I certify the no exceedances during the reinformation is valid.								est of my knowledge there were ne best of my knowledge the
SUBMITTED BY:	See certif	ication page	e at fr	ont of 1	report	_	DATE:	

REPORTING QUARTER:		Fourth, 2018		AQDFILE# #0203 (AI ID 447)		
EMISSION UNIT(S): Heater 32-B-1 (EQUI14)			QUI14)			
POLLUTANT MONITORED:		NOx (365 day roll	ling avg) and O2			
DATE/TIME	DURATION	CONCENTRATION	CAUSE/CORRECTI	VE ACTION		
a) Startup/Shutdown 10/1/2018 1/1/2019		No excess emissions.				
Total	0.00	_NO excess emissions.				
b) Control equipment 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.				
c) Process problems 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.				
d) Other known causes 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.				
e) Unknown causes 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.				
f) Soot blowing 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.				
g) Fuel problems 10/1/2018 1/1/2019 ₋ Total	0.00	_No excess emissions.				

CONTINUOUS EMISSION MONITOR DOWNTIME REPORT

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		Heater 32-B-1 (EQUI14)	
POLLUTANT MONITORED:		NOx and O2	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total	0.00	-	
b) Non-monitor malfunction			
Total	0.00	-	
c) QA calibration			
Total -	0.00	_	
d) Other known causes 10/24/2018 13:00			
10/24/2018 14:00 11/7/2018 7:00	1.00	Communications error	
11/7/2018 9:00 11/15/2018 13:00	2.00	Communications error	
11/15/2018 16:00 _ Total	3.00 6.00	Preventive maintenance	
e) Unknown causes			
Total	0.00	_	

AQD FILE #: #0203 (AI ID 447)

POLLUTANT (circle one):	SO2	NOx	CO	CO2	O2	TRS	H2S	HCL	Opacity	
	Other:	Flow								
				-	MONITOR					
REPORTING QUARTER:	Fourth, 2018			_	MODEL:		Fuel Gas F	low Rate/	FG H2S CEM	
FACILITY:					MFR:					
St. Paul Park Re	fining Co. LLC									
				-						
	•			_	EMISSION	LIMIT	AND AVERAG	E TIME:		
EMISSION SUBJECT ITEM:	EQUI14			_	2.97 lb	SO2/hr	- 3 hour r	olling ave	erage	
					1.75 lb	SO2/mm	btu - 3 hou	r rolling	avg.	
					EMISSION	BASIS:	SIP for SC)2 NAAQS (Effective 9-10-2009))
EMISSION UNIT(S):	HDH Heater			_						
	32-B-1			_						
1000011750175110										
ASSOCIATED ITEMS:										
COMG7, COMG14, E	QU1163, EQU119	2, STRU63		-						
					TOTAL OP	FRATIN	IG HOURS			
					OF EMISS			1931		
							_		_	
A. EMISSION DATA SUMMA	RY				B. CEM Pe	erforma	nce Summar	у		
DURATION OF EXC	ESS EMISSIONS (I	HRS)			10	DURATIO	ON OF CEM D	OWNTIME [DURING	
1			ib/hr	lb/m m btu	5	SOURCE	E OPERATION	I (HRS)		
a) Startup/Shutdown			0.00	0.00	1				Fuel Gas	
b) Control equipment	t	-	0.00	0.00	a	a) Monito	or malfunction		0.00	
c) Process problems		-	0.00	0.00	4	•	nonitor malfund	ction	0.00	
d) Other known caus	es	-	0.00	0.00	-1	c) QA ca			0.00	
e) Unknown causes		-	0.00	0.00			known causes	3	1.00	
f) Soot blowing		-	0.00	0.00	.} •	e) Unkno	wn causes		0.00	
g) Fuel problems			0.00	0.00	4		_			
2 TOTAL DURATION (•	-	0.00	0.00	7		DURATION (H	RS)	1.00	
3 PERCENT OF TOTA					1		IT OF TOTAL			
EXCESS EMISSION	S		0.00%	0.00%	┤ '	SEM DO	WNTIME		0.05%	
					4					
	FOR OPACITY, I	RECORD ALL	TIMES IN MI	NUTES. FOR	GASES, RE	CORD	ALL TIMES IN	HOURS.		
% Total Excess Emissions =		Total Duration	of Excess Er	nissions / (Tota	al Operating	Time - C	CEM Downtime	≘)		
NOTES:										
						-				
If no exceedances: I certify the										ces during
the reporting period. I certify					tne pest of r	ny know	-		liu.	
SUBMITTED BY:	See certifica	tion page a	at front of	report			_	DATE:		

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		32-B-1	
POLLUTANT MONITORED:		SO2 lb/hr	
DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION CAUSE/CORRECTIVE ACTION	
a) Startup/Shutdown 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.	
b) Control equipment 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
c) Process problems 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
d) Other known causes 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.	
e) Unknown causes 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
f) Soot blowing 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
g) Fuel problems 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	

REPORTING QUARTER:		Fourth, 2018		AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		32-B-1		
POLLUTANT MONITORED:		SO2 lb/mmbtu		
DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION	
a) Startup/Shutdown 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
b) Control equipment 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
c) Process problems 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
d) Other known causes 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
e) Unknown causes 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
f) Soot blowing 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
g) Fuel problems 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		

CONTINUOUS EMISSION MONITOR DOWNTIME REPORT

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		Heater 32-B-1	
POLLUTANT MONITORED:		Fuel Gas Flow Rate	
_DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total	0.00	_	
b) Non-monitor malfunction			
Total -	0.00	_	
c) QA calibration			
Total	0.00	_	
d) Other known causes 10/24/18 13:00	4.00	•	
10/24/18 14:00 Total	1.00	_Communications error	
e) Unknown causes			
Total -	0.00	_	

AQDFILE#: #0203 (AI ID 447)

POLLUTANT (circle one):	SUZ NUX	CO	CO2	O2 TRS H2S HCL	Opacity
	Other: Flow		-	MONITOR	
REPORTING QUARTER:	Fourth, 2018	·	-	MODEL: Fuel Gas Flow Ra	ate/FG_H2S_CEM
FACILITY:				MFR:	
	Refining Co. LLC		_		
			_		
ENIODIONI OLID IEGE IMEN				EMISSION LIMIT AND AVERAGE TIME:	
EMISSION SUBJECT ITEM:	EQUI15		-	1.60 lb SO2/hr - 3 hour 1.75 lb SO2/mmbtu - 3 h	
EMISSION UNIT(S):	Dehex Reboiler Heate	r		1.75 to 502/mmbtd - 3 to	our rolling avg.
	Heater 10-B-1		-	EMISSION BASIS: SIP for	SO2 NAAQS
ASSOCIATED ITEMS:	COMG7, COMG14, EQUI1	63, EQUI1	93, EQUI19	4, STRU9	
				OPERATING HOURS OF EMISSION UN	IIT:
				Total	Fuel Gas
				1984	1984
A. EMISSION DATA SUMMA	.BV			B. CEM Performance Summary	
	CESS EMISSIONS (HRS)			1 DURATION OF CEM DOWNTIN	ME DURING
1		lb/hr	lb/mmbtu	SOURCE OPERATION (HRS)	
a) Startup/Shutdowr	1	0.00	0.00	, i	Fuel Gas
b) Control equipmer	nt	0.00	0.00	a) Monitor malfunction	0.00
c) Process problems	S	0.00	0.00	b) Non-monitor malfunction	0.00
d) Other known caus	ses	0.00	0.00	c) QA calibration	0.00
e) Unknown causes		0.00	0.00	d) Other known causes	0.00
f) Soot blowing		0.00	0.00	e) Unknown causes	0.00
g) Fuel problems		0.00	0.00		
2 TOTAL DURATION	(HRS)	0.00	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOT	AL			3 PERCENT OF TOTAL	
EXCESS EMISSION	IS	0.00%	0.00%	CEM DOWNTIME	0.00%
	FOR OPACITY, RECORD A	LL TIMES IN	MINUTES. F	OR GASES, RECORD ALL TIMES IN HO	URS.
					
% Total Excess Emissions =	Total Duration	n of Excess I	Emissions / (T	otal Operating Time - CEM Downtime)	
NOTES: There was zero	fuel oil runtime duri	ng the qu	uarter.		
			, <u>.</u>		
				ith the results, and that to the best of my k	
•	,			n in this report and that to the best of my k	inowiedge the information is valid.
SUBMITTED BY:	See certification pa	ge at irc	ont of repo	rt DATF	

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		Heater 10-B-1	-
POLLUTANT MONITORED:		S02 lb/hr	
DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION CAUSE/CORRECTIVE ACTION	
a) Startup/Shutdown 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
b) Control equipment 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
c) Process problems 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
d) Other known causes 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
e) Unknown causes 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.	
f) Soot blowing 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
g) Fuel problems 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	

REPORTING QUARTER:		Fourth, 2018	AQD FILE#: #0203 (AI ID 447)
EMISSION UNIT(S):		Heater 10-B-1	
POLLUTANT MONITORED:		SO2 lb/mmbtu	
DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION CAUSE/CORRECTIVE ACTION	
a) Startup/Shutdown 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.	
b) Control equipment 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.	
c) Process problems 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.	
d) Other known causes 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.	
e) Unknown causes 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.	
f) Soot blowing 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.	
g) Fuel problems 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.	

CONTINUOUS EMISSION MONITOR DOWNTIME REPORT

REPORTING QUARTER:		Fourth, 2018	AQDFILE#: #0203 (AI ID 447)
EMISSION UNIT(S):		Heater 10-B-1	
POLLUTANT MONITORED:		Fuel Gas Flow Rate	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total	0.00	_	
b) Non-monitor malfunction			
Total	0.00	-	
c) QA calibration			
Total	0.00	-	
d) Other known causes			
Total	0.00	_	
e) Unknown causes			
Total		_	

AQD FILE #: #0203 (AI ID 447)

POLLUTANT (circle one):	SO2 NOX CO CO2	O2 TRS H2S HCL	Opacity	
	Other: SO2 also a surrogate f	or MACT Subpart UUU HAP Emissio	ons	
REPORTING QUARTER:	Fourth, 2018	MONITOR		1 S02
FACILITY:		MODEL:	Magnos 106 - 02	
St. Paul Park Re:	fining Co. LLC	MFR:	ABB	
EMISSION SUBJECT ITEM:	EQUI000000016	EMISSION	I LIMIT AND AVERAGE T	IME: 2 hour rolling average
EMISSION UNIT(S):	#2 SRU/SCOT unit		<u> 230 pp 562 1</u>	o nour reasons were seen
Emission of the (o).		EMISSION	I BASIS:	
		40 CFR 6	NSPS Subpart J	
ASSOCIATED ITEMS:	TREA12, COMG8, EQUI166, EQUI167,	STRU81 40 CFR 6	3.1568 Table 29 Opt 1	a MACT Subpart UUU
PROCESS UNIT DESCRIPTION		Recovery Unit with a Tail Gas TERU Incinerator. The sulfur unit TOTAL OPERATING HOURS OF EMISSION UNIT:		ss 50 LTPD.
A. EMISSION DATA SUMMAR	ey .	B. CEM PERFORMANCE SUMMARY		C. SRU BYPASS INFORMATION
1 DURATION OF EXCE a) Startup/Shutdown b) Control equipment c) Process problems d) Other known cause e) Unknown causes f) Soot blowing g) Fuel problems 2 TOTAL DURATION (F) 3 PERCENT OF TOTAL EXCESS EMISSIONS	SS EMISSIONS (HRS)	1 DURATION OF CEM DOWNTII SOURCE OPERATION (HRS) a) Monitor malfunction b) Non-monitor malfunction c) QA calibration d) Other known causes e) Unknown causes 2 TOTAL DURATION (HRS) 3 PERCENT OF TOTAL CEM DOWNTIME	0.00 0.00 0.00 1.00 0.00	1 DURATION OF BYPASS a) Process Problems b) Other known causes c) Unknown causes 0.00 2 TOTAL DURATION (HRS) 3 PERCENT OF TOTAL OPERATION HOURS 0.00%
	CEM Downtime / Total Opera	ation gas concentration is used to replac	e any analyzer readings o	ver that value since measured
	t the required analyses were made, that I am fring the reporting period. I certify that I am fan laid. See certification page at front o	niliar with the information in this report an		
0051125.51.		DATE:		•

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		#2 SRU/SCOT unit	
POLLUTANT MONITORED:		SO2 (ppm)	
DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCEN. (ppm, 12-hr average) and recalc	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown	(11110)	and recare	CAUSE/CONNECTIVE ACTION
a) Startup/Shutdown 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00	_ NO excess emissions.	
b) Control equipment 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00	_,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
c) Process problems 10/1/2018 1/1/2019 Total	0.00	No excess emissions.	
d) Other known causes 10/1/2018 17/1/2019	0.00	No excess emissions.	
Total	0.00		
e) Unknown causes 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
Total	0.00		
f) Soot blowing 10/1/2018 1/1/2019	0.00	_No excess emissions.	
Total	0.00		
g) Fuel problems 10/1/2018 1/1/2019		_No excess emissions.	
Total	0.00		

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)	
EMISSION UNIT(S):		#2 SRU/SCOT unit		
POLLUTANT MONITORED:		SO2		
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION		
a) Monitor malfunction				
Total b) Non-monitor malfunction	0.00	-		
o, rest manaress.				
Total	0.00	-		
c) QA calibration				
Total	0.00	_		
d) Other known causes 10/25/2018 11:00 10/25/2018 12:00	1.00	Communications error		
Total .	1.00	-		
e) Unknown causes				
Total .	0.00	-		

CONTINUOUS EMISSION MONITOR SRU BYPASS INFORMATION

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		#2 SRU/SCOT unit	_
POLLUTANT MONITORED:		Bypass (Acid gas)	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
a) Process problems			
10/1/2018 1/1/2019 Total	0.00	No bypasses that resulted in excess emissions.	
b) Other known causes			
10/1/2018 1/1/2019		No bypasses that resulted in excess emissions.	
Total	0.00	- "	
b) Unknown causes			
10/1/2018			
1/1/2019		No bypasses that resulted in excess emissions.	
Total	0.00		

AQD FILE #: #0203 (AI ID 447)

POLLUTANT (circle one): SO2	NOx	co co	02 0 2 TRS	S H2S HCL	Opacity
Other:			_		
			MONITOR	Advance Limas 11	502
REPORTING QUARTER: Fourth, 2018			MODEL:	Magnos 106 - 02	
FACILITY:			MFR: ABB		
St. Paul Park Refining Co. LLC	<u> </u>		<u>—</u>		
ENIONICH CUR IECT ITEM				AND AVERAGE TIME:	
EMISSION SUBJECT ITEM: EQUI16				1b S02/hr - 1 hour	
EMISSION UNIT(S): #2 SRU/SCOT un	nit		15.0	1b S02/hr - 3 hour	rolling average
2.41001011 01411(0).			EMISSION BASI	S: MN Rule 7009.002	0 - AAQS/SIP
ACCCOUNTED ITEMS					
ASSOCIATED ITEMS: TREA12, COMG8,	, EQUI166, EQUI167, STRU14				
			TOTAL OPERAT	FING HOURS	
			OF EMISSION U	JNIT: 1954	
A. EMISSION DATA SUMMARY			B. CEM PERFO	RMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)				
	1 hr	3 hr	1 DURA	TION OF CEM DOWNTIN	IE DURING
a) Startup/Shutdown	0.00	0.00		CE OPERATION (HRS)	
b) Control equipment	0.00	0.00	4	itor malfunction	0.00
c) Process problems	0.00	0.00	1 '	-monitor malfunction	0.00
d) Other known causes	0.00	0.00		calibration	0.00
e) Unknown causes f) Soot blowing	0.00	0.00		er known causes nown causes	0.00
g) Fuel problems	0.00	0.00	6,0110	HOWIT Causes	0.00
2 TOTAL DURATION (HRS)	0.00	0.00	2 TOTAL	DURATION (HRS)	1.00
3 PERCENT OF TOTAL		0.00		ENT OF TOTAL	
EXCESS EMISSIONS	0.00%	0.00%	1	OOWNTIME	0.05%
FOR OPACITY R	ECORD ALL TIMES IN MINUTES. F	OR GASES, RECOR	D ALL TIMES IN HO	OURS.	
, 31, 31, 713, 71, 71		33,1023,1120011			
% Total Excess Emissions = Total Duration of	Excess Emissions / (Total Operating	Time - CEM Downtim	ne)		
% Total CEM Downtime =	CEM Downtime / Total Operating	Time			
_					
NOTE:					
lb/hr SO2 CEM downtime same as	reported for #2 SRU/SCOT (EU 019) SO2 ppm			
If no exceedances: I certify that the required anal	lyses were made, that I am familiar w	ith the results and tha	at to the hest of my l	rnowledge there were no	exceedances during the
reporting period. I certify that I am familiar with the					CACCOGGIOCO GUINING INC
SUBMITTED BY: See certificat	ion page at front of report	-		DATE:	
	F				

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		#2 SRU/SCOT unit	
POLLUTANT MONITORED:		SO2 (lbs/hr)	-
DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCEN. (lbs/hr, 1-hr average) and ppm recal	c CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown 10/1/2018 1/1/2019 Total	0.00	_ No excess emissions.	
b) Control equipment 10/1/2018 1/1/2019 Total	0.00	No excess emissions.	
c) Process problems 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.	
d) Other known causes 10/1/2018 1/1/2019 Total	0.00	_ No excess emissions.	
e) Unknown causes 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.	
f) Soot blowing 10/1/2018 1/1/2019 Total	0.00	No excess emissions.	
g) Fuel problems 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.	

EXCESS EMISSION REPORT

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		#2 SRU/SCOT unit	
POLLUTANT MONITORED:		SO2 (lbs/hr)	
DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCEN. (lbs/hr, 3-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown 10/1/2018 1/1/2019 _		No excess emissions.	
Total	0.00		
b) Control equipment 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00		
c) Process problems 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00		
d) Other known causes 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00		
e) Unknown causes 10/1/2018 1/1/2019 _		No excess emissions.	
Total	0.00		
f) Soot blowing 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.	
g) Fuel problems 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00		

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		#2 SRU/SCOT unit	
POLLUTANT MONITORED:		SO2 (lbs/hr)	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
	SO2 lb/hr do	wntime same as reported for #2 SRU/SCOT (EU 019) SO2 ppm
a) Monitor malfunction			
Total	0.00	See #2 SCOT ppm page for details	
b) Non-monitor malfunction			
Total	0.00	_ See #2 SCOT ppm page for details	
c) QA calibration			
Total	0.00	See #2 SCOT ppm page for details	
d) Other known causes			
Total	1.00	See #2 SCOT ppm page for details	
e) Unknown causes			
Total	0.00	See #2 SCOT ppm page for details	

AQD FILE#: #0203 (AI ID 447)

POLLUTANT (circle one):	SO2 Other: flo	NOx	CO CO	D2 O2 TRS H2S HCL Opacity				
	Other.			MONITOR				
REPORTING QUARTER:	Fourth, 2018			MODEL: Fuel Gas Flow Rate/FG H2S CEM				
FACILITY:				MFR:				
St. Paul Park F	Refining Co. LLC							
EMISSION SUBJECT ITEM:	DOMEST 2			EMISSION LIMITS AND AVERAGING TIME:				
LIVIOSION SUBJECT TI LIVI.	EQUI17			1.70 lb SO2/hr - 3 hour rolling average 1.75 lb SO2/mmbtu - 3 hour rolling avg.				
EMISSION UNIT(S):	Guard Case React	or Hea	ter	1.73 10 002/mmbed 3 nodi 10111ng dvg.				
(-7)	36-B-1			EMISSION BASIS: SIP for SO2 NAAQS				
ASSOCIATED ITEMS:	COMG9, COMG7, EQ	JI163,	EQUI199, STRU					
				TOTAL OPERATING HOURS OF EMISSION UNIT: 1761				
A. EMISSION DATA SUMMA	RY			B. CEM PERFORMANCE SUMMARY				
1 DURATION OF EXC	ESS EMISSIONS (HRS)							
		lb/hr	lb/mmbtu	1 DURATION OF CEM DOWNTIME DURING				
a) Startup/Shutdown		0.00	0.00	SOURCE OPERATION (HRS)				
b) Control equipmen		0.00	0.00	a) Monitor malfunction 0.00				
c) Process problems		0.00	0.00	b) Non-monitor malfunction 0.00				
d) Other known caus		0.00	0.00	c) QA calibration 0.00				
e) Unknown causes		0.00	0.00	d) Other known causes 0.00				
f) Soot blowing		0.00	0.00	e) Unknown causes 0.00				
g) Fuel problems		0.00	0.00					
2 TOTAL DURATION	• • —	0.00	0.00	2 TOTAL DURATION (HRS) 0.00				
3 PERCENT OF TOTA				3 PERCENT OF TOTAL				
EXCESS EMISSION	s <u> </u>	.00%	0.00%	CEM DOWNTIME 0.00%				
	FOR OPACITY, RECO	RD ALL	TIMES IN MINUTE	S. FOR GASES, RECORD ALL TIMES IN HOURS.				
% Total Excess Emissions =	Tot	al Durati	on of Excess Emiss	sions / (Total Operating Time - CEM Downtime)				
% Total CEM Downtime =	CE	M Downt	ime / Total Operati	ng Time				
NOTES:								
Maria and a desired to a series of			.d. 46-41 8 W	the state of the second state of the state o				
				ar with the results, and that to the best of my knowledge there were no nation in this report and that to the best of my knowledge the information is valid.				
SUBMITTED BY:	See certificatio							

REPORTING QUARTER:		Fourth, 2018	AQD FILE# #0203 (AI ID 447)
EMISSION UNIT(S):		36-B-1	
POLLUTANT MONITORED:		S02 - 1b/hr	
DATE/TIME	TOTAL DURATION (HRS)	MAX CONCENTRATION	CAUSE/CORRECTIVE ACTION
DATETIME	(111(0)	WAY. CONCENTRATION	CAUSE CONNECTIVE ACTION
a) Startup/Shutdown 10/1/2018 1/1/2019		_No excess emissions.	
Total	0.00		
b) Control equipment 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00	-	
c) Process problems 10/1/2018 1/1/2019		_No excess emissions.	
Total	0.00		
d) Other known causes 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.	
e) Unknown causes 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00		
f) Soot blowing 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
g) Fuel problems 10/1/2018 1/1/2019 _ Total	0.00	_ No excess emissions.	
i Olai	0.00		

REPORTING QUARTER:		Fourth, 2018	AQD FILE #	#0203 (AI ID 447)
EMISSION UNIT(S):		36-B-1		
POLLUTANT MONITORED:		S02 - lb/mmbtu		
DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION	
a) Startup/Shutdown 10/1/2018 1/1/2019	0.00	_No excess emissions.		
Total b) Control equipment 10/1/2018 1/1/2019	0.00	No excess emissions.		
Total	0.00	_		
c) Process problems 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.		
d) Other known causes 10/1/2018 1/1/2019 Total	0.00	No excess emissions.		
e) Unknown causes 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.		
f) Soot blowing 10/1/2018 1/1/2019 Total	0.00	_ No excess emissions.		
g) Fuel problems 10/1/2018 1/1/2019 Total	0.00	No excess emissions.		

REPORTING QUARTER:		Fourth, 2018	AQD FILE#: #0203 (AI ID 447)
EMISSION UNIT(S):		36-B-1 Fuel Gas Flow Rate	72.
POLLUTANT MONITORED:		S02	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total	0.00	_	
b) Non-monitor malfunction			
Total	0.00	_	
c) QA calibration			
Total	0.00		
d) Other known causes			
Total	0.00	_	
e) Unknown causes			
Total	0.00		

AQD FILE #: #0203 (AI ID 447)

1 DURATION OF EXCESS EMISSIONS (HRS) Ib/hr Ib/mmbtu 1 DURATION OF CEM DOWNTIME DURING a) Startup/Shutdown 0.00 0.00 SOURCE OPERATION (HRS) b) Control equipment 0.00 0.00 a) Monitor malfunction 0.00 c) Process problems 0.00 0.00 b) Non-monitor malfunction 0.00	POLLUTANT (circle one):	SO2	NOx	co	CO2	02	TRS	H2S	HCL	Opacity
### REPORTING QUARTER: Fourth, 2018 MODEL: Fuel Gas Flow Rate/FG H2S CEM #### FACILITY:		Other:	Flow		_					
### FACILITY: MFR: St. Paul Park Refining Co. LLC						MONITO	DR .			
EMISSION SUBJECT ITEM: EQUI18 EMISSION LIMITS AND AVERAGING TIME:	REPORTING QUARTER:	Fourth, 2018			-	MODEL	:	Fuel Gas	Flow Rat	e/FG H2S CEM
EMISSION SUBJECT ITEM: EQUI18	FACILITY:					MFR:				
EMISSION SUBJECT ITEM: EQUI18	St. Paul Park Re	efining Co. L	LC		_					
EMISSION SUBJECT ITEM: EQUI18					_					
EMISSION UNIT(S): Reactor Charge Heater 36-B-2,3,4 EMISSION BASIS: SIP for SO2 NAAQS						EMISSI	ON LIMITS	S AND AVER	RAGING TIN	ME:
### EMISSION UNIT(S): Reactor Charge Heater	EMISSION SUBJECT ITEM:	EQUI18	·		-	•				
ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI200, STRU12 TOTAL OPERATING HOURS OF EMISSION UNIT: 1865 A. EMISSION DATA SUMMARY 1 DURATION OF EXCESS EMISSIONS (HRS) Ib/hr Ib/mmbtu 1 DURATION OF CEM DOWNTIME DURING	EMICCION LIMIT(C):	D	!!				1.75 lb	SO2/mmbt	u - 3 ho	ur rolling avg.
ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI200, STRU12 TOTAL OPERATING HOURS	EMISSION UNIT(S).		ge Heater		-	EMISSI	ON BASIS	:-	CID for S	O2 NAAOS
TOTAL OPERATING HOURS OF EMISSION UNIT: 1865		30-B-2,3,4			-	LIVIIOGIC	JN DAGIO	· <u>-</u>	31F 101 3	OZ MAQS
A. EMISSION DATA SUMMARY 1 DURATION OF EXCESS EMISSIONS (HRS) 1 b/hr lb/mmbtu 1 DURATION OF CEM DOWNTIME DURING 2 a) Startup/Shutdown 0.00 0.00 SOURCE OPERATION (HRS) 3 b) Control equipment 0.00 0.00 a) Monitor malfunction 0.00 0.00 c) Process problems 0.00 0.00 b) Non-monitor malfunction 0.00 0.00	ASSOCIATED ITEMS:	COMG9, COMG7	, EQUI163	, EQUI200,	STRU12	2				
A. EMISSION DATA SUMMARY 1 DURATION OF EXCESS EMISSIONS (HRS) 1 b/hr lb/mmbtu 1 DURATION OF CEM DOWNTIME DURING 2 a) Startup/Shutdown 0.00 0.00 SOURCE OPERATION (HRS) 3 b) Control equipment 0.00 0.00 a) Monitor malfunction 0.00 0.00 c) Process problems 0.00 0.00 b) Non-monitor malfunction 0.00 0.00						•				
A. EMISSION DATA SUMMARY B. CEM PERFORMANCE SUMMARY 1 DURATION OF EXCESS EMISSIONS (HRS) Ib/hr Ib/mmbtu 1 DURATION OF CEM DOWNTIME DURING a) Startup/Shutdown 0.00 0.00 SOURCE OPERATION (HRS) b) Control equipment 0.00 0.00 a) Monitor malfunction 0.00 c) Process problems 0.00 0.00 b) Non-monitor malfunction 0.00						TOTAL	OPERATI	NG HOURS	3	
1 DURATION OF EXCESS EMISSIONS (HRS) Ib/hr Ib/mmbtu 1 DURATION OF CEM DOWNTIME DURING a) Startup/Shutdown 0.00 0.00 SOURCE OPERATION (HRS) b) Control equipment 0.00 0.00 a) Monitor malfunction 0.00 c) Process problems 0.00 0.00 b) Non-monitor malfunction 0.00						OF EMIS	SSION UN	NIT:	1865	-
1 DURATION OF EXCESS EMISSIONS (HRS) Ib/hr Ib/mmbtu 1 DURATION OF CEM DOWNTIME DURING a) Startup/Shutdown 0.00 0.00 SOURCE OPERATION (HRS) b) Control equipment 0.00 0.00 a) Monitor malfunction 0.00 c) Process problems 0.00 0.00 b) Non-monitor malfunction 0.00	A EMISSION DATA SUMMA	DV				D CEM	DEBEOR	MANCE SI	INAMA DV	
Ib/hr Ib/mmbtu 1 DURATION OF CEM DOWNTIME DURING			(HRS)			B. CEIVI	FERFOR	WANGE 30	MAINALY I	
a) Startup/Shutdown 0.00 0.00 SOURCE OPERATION (HRS) b) Control equipment 0.00 0.00 a) Monitor malfunction 0.00 c) Process problems 0.00 0.00 b) Non-monitor malfunction 0.00	1 DONATION OF EXO	EGO ENIIGOIGIAO		lb/mmbtu		1	DURATIO	ON OF CEM	DOWNTIM	E DURING
b) Control equipment 0.00 0.00 a) Monitor malfunction 0.00 c) Process problems 0.00 0.00 b) Non-monitor malfunction 0.00	a) Startup/Shutdown		0.00	0.00			SOURCE	OPERATIO	ON (HRS)	
, , , , , , , , , , , , , , , , , , , ,	· ·	t	0.00	0.00			a) Monito	r malfunctio	n ` ´	0.00
1) Others (as a second	c) Process problems		0.00	0.00			b) Non-m	onitor malfu	nction	0.00
d) Other known causes 0.00 0.00 c) QA calibration 0.00	d) Other known cause	es	0.00	0.00	_		c) QA cal	ibration		0.00
e) Unknown causes 0.00 0.00 d) Other known causes 0.00	e) Unknown causes		0.00	0.00	-		d) Other I	known cause	es	0.00
f) Soot blowing 0.00 0.00 e) Unknown causes 0.00			0.00	0.00			e) Unkno	wn causes		0.00
g) Fuel problems 0.00 0.00	g) Fuel problems		0.00	0.00						
2 TOTAL DURATION (HRS) 0.00 0.00 2 TOTAL DURATION (HRS) 0.00	•	•	0.00	0.00	_					0.00
3 PERCENT OF TOTAL 3 PERCENT OF TOTAL									L	
EXCESS EMISSIONS 0.00% 0.00% CEM DOWNTIME 0.00%	EXCESS EMISSIONS	S	0.00%	0.00%	-		CEM DO	WNTIME		0.00%
FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.		FOR OPACITY,	RECORD AL	L TIMES IN M	INUTES	S. FOR (GASES, R	ECORD AL	L TIMES IN	HOURS.
% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)	% Total Excess Emissions =		Total Durati	on of Excess E	missior	ns / (Tota	l Operatin	g Time - CE	M Downtim	e)
% Total CEM Downtime = CEM Downtime / Total Operating Time	% Total CEM Downtime =		CEM Down	time / Total Ope	eratina i	Time				
WATER .	NOTEO			or rotal op	or call rig					
NOTES:	NOTES.									
					_					
		<u> </u>			•					
If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.	exceedances during the report									
SUBMITTED BY: See certification page at front of report DATE:		See certific	ation page	e at front	of rep	port		_	DATE:	

REPORTING QUARTER:		Fourth, 2018	AQD FILE # #0203 (AI ID 447)
EMISSION UNIT(S):		36-B-2,3,4	
POLLUTANT MONITORED:		S02 - 1b/hr	
DATE/TIME	TOTAL DURATION (HRS)	MAX CONCENTRATION (CAUSE/CORRECTIVE ACTION
DATETIME	(1110)	INAC. CONCENTION	CAUSE/CONNECTIVE ACTION
a) Startup/Shutdown 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00	_	
b) Control equipment 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00		
c) Process problems 10/1/2018 1/1/2019		_ No excess emissions.	
Total	0.00		
d) Other known causes 10/1/2018 1/1/2019		_No excess emissions.	
Total	0.00		
e) Unknown causes 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00	NO excess emissions.	
f) Soot blowing 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.	
g) Fuel problems 10/1/2018 1/1/2019 _		No excess emissions.	
Total	0.00		

REPORTING QUARTER:		Fourth, 2018	AQDFILE#: #0203 (AI ID 447)
EMISSION UNIT(S):		36-B-2,3,4	
POLLUTANT MONITORED:		S02 - 1b/mmbtu	
DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00	-	
b) Control equipment 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00	_	
c) Process problems 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.	
d) Other known causes 10/1/2018 1/1/2019		No excess emissions.	
Total e) Unknown causes 10/1/2018	0.00		
1/1/2019_		No excess emissions.	
Total	0.00		
f) Soot blowing 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.	
i Otal	0.00		
g) Fuel problems 10/1/2018 1/1/2019		_No excess emissions.	
Total	0.00		

REPORTING QUARTER:		Fourth, 2018	AQD FILE # #0203 (AI ID 447)
EMISSION UNIT(S):		36-B-2,3,4 Fuel Gas Flow Rate	
POLLUTANT MONITORED:		S02	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total	0.00	_	
b) Non-monitor malfunction			
Total	0.00	_	
c) QA calibration			
Total	0.00	_	
d) Other known causes			
Total	0.00	_	
e) Unknown causes			
Total	0.00	_	

AQD FILE #: #0203 (AI ID 447)

POLLUTANT (circle one):	SO2	NOx	co	CO2	02	TRS	H2S	HCL	Opacity
	Other:	Flow_		-					
					MONIT				
REPORTING QUARTER:	Fourth, 2018		· · · · · · · · · · · · · · · · · · ·	-	MODEL	i.	Fuel Gas	Flow Ra	te/FG H2S CEM
FACILITY:					MFR:				
St. Paul Park F	Refining Co. LL	С							
				_					
					EMISSI	ON LIMITS	AND AVER	AGING TIM	IE:
EMISSION SUBJECT ITEM:	EQUI19			_					rolling avg.
EMISSION UNIT(S):	Donaton Chara	o Meston				1.75 1	SO2/mmbt	u - 3 hc	our rolling avg.
EMISSION UNIT (S).	Reactor Charg	е пеасег		-	EMISSI	ON BASIS		SID for S	SO2 NAAQS
	<u> </u>			-	LIVIIOON	J14 D/1010		011 101 1	JOZ KANOB
ASSOCIATED ITEMS:	COMG9, COMG7,	EQUI163,	EQUI201, S	STRU80)				
							ING HOURS		
					OF EMI	SSION UN	NIT:	1887	-
A. EMISSION DATA SUMMA	RY				B. CEM	PERFOR	MANCE SU	MMARY	
1 DURATION OF EXC		IRS)						<u></u>	
		lb/hr	lb/mmbtu		1	DURATIO	ON OF CEM	DOWNTIM	E DURING
a) Startup/Shutdown		0.00	0.00	_		SOURCE	OPERATIO	N (HRS)	
b) Control equipmen	t	0.00	0.00	_	1	a) Monito	r malfunction	n	0.00
c) Process problems	3	0.00	0.00	_		b) Non-m	nonitor malfu	nction	0.00
d) Other known caus	ses	0.00	0.00	_		c) QA ca	libration		0.00
e) Unknown causes		0.00	0.00	_		d) Other	known cause	es	0.00
f) Soot blowing		0.00	0.00	_	Ì	e) Unkno	wn causes		0.00
g) Fuel problems		0.00	0.00	_	1				
2 TOTAL DURATION	(HRS)	0.00	0.00	_	2	TOTAL E	DURATION (HRS)	0.00
3 PERCENT OF TOTAL	AL.				3	PERCEN	IT OF TOTA	L	
EXCESS EMISSION	S	0.00%	0.00%	_		CEM DO	WNTIME		0.00%
	FOR ORACITY R	COODD ALL	TIMES IN MINI	UTEC	500.64	10F0 DE	CODD ALL 7	FINATO IN LIA	oune .
	FOR OPACITY, R	ECOND ALL	THINES HA MINA	UTES.			COND ALL I	- INIES IN FIC	JON3.
% Total Excess Emissions =		Total Duration	on of Excess E	mission	ns / (Tota	al Operatir	ng Time - CE	M Downtim	e)
% Total CEM Downtime =		CEM Downti	me / Total Ope	erating	Time				
NOTES:			·	_					
NOTEO									
, <u></u>									
If no exceedances: I certify the exceedances during the report	,		•			,		•	knowledge there were no knowledge the information is valid.
SUBMITTED BY:	See certifica					p wi		DATE:	

REPORTING QUARTER:		Fourth, 2018	AQD FILE #:	#0203 (AI ID 447)	
EMISSION UNIT(S):		36-B-6E			
POLLUTANT MONITORED:		S02 - 1b/hr_			
DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION		
a) Startup/Shutdown 10/1/2018 1/1/2019 Total	0.00	No excess emissions.			
b) Control equipment 10/1/2018 1/1/2019 Total	0.00	_ No excess emissions.			
c) Process problems 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.			
d) Other known causes 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.			
e) Unknown causes 10/1/2018 1/1/2019 Total	0.00	_ No excess emissions.			
f) Soot blowing 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.			
g) Fuel problems 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.			

REPORTING QUARTER:		Fourth, 2018 AQD FILE# #0203 (AI ID 447)	
EMISSION UNIT(S):		36-B-6E	
POLLUTANT MONITORED:		SO2 - 1b/mmbtu	
DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION CAUSE/CORRECTIVE ACTION	
a) Startup/Shutdown 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.	
b) Control equipment 10/1/2018 1/1/2019	0.00	No excess emissions.	
Total	0.00	-	
c) Process problems 10/1/2018 1/1/2019 Total	0.00	No excess emissions.	
d) Other known causes 10/1/2018 1/1/2019		No excess emissions.	
Total e) Unknown causes	0.00		
10/1/2018 1/1/2019 Total	0.00	No excess emissions.	
f) Soot blowing 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00		
g) Fuel problems 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00		

REPORTING QUARTER:		Fourth, 2018	AQDFILE#: #0203 (AI ID 447)
EMISSION UNIT(S):		3-B-6E Fuel Gas Flow Rate	
POLLUTANT MONITORED:		S02	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction	,		
Total	0.00	_	
b) Non-monitor malfunction			
Total	0.00	_	
c) QA calibration			
Total	0.00	_	
d) Other known causes			
Total	0.00	_	
e) Unknown causes			
Total .	0.00	<u> </u>	

AQD FILE #: #0203 (AI ID 447)

POLLUTANT (circle one):	SO2	NOx	CO	CO2	O2	TRS	H2S	HCL	Opacity
	Other:	Flow			MONITO	R			
REPORTING QUARTER:	Fourth, 2018				MODEL:		Fuel Gas	Flow Rat	e/FG H2S CEM
FACILITY:					MFR:				
St. Paul Park R	efining Co. LLC				_				
					EMICCIO	A	C AND AVE	NACINIC TIM	r.
EMISSION SUBJECT ITEM:	EQUI20						S AND AVER		E: colling average
					_				ur rolling avg.
EMISSION UNIT(S):	Reactor Charge	Heaters			_				
	36-B-6W				EMISSIO	N BASIS	S: .	SIP for S	O2 NAAQS
ASSOCIATED ITEMS:	COMG9, COMG7,	EQUI163, EQ	UI202, STRU	179					
					_				
							ING HOURS		
					OF EMIS	SION UN	NII:	1888	-
A. EMISSION DATA SUMMA	RY				B. CEM	PERFOR	MANCE SU	MMARY	
1 DURATION OF EXC	ESS EMISSIONS (H	RS)							
		lb/hr	lb/mmbtu		1		ON OF CEM		E DURING
a) Startup/Shutdown		0.00	0.00		1		E OPERATIO	, ,	
b) Control equipment	t	0.00	0.00		1	•	or malfunction		0.00
c) Process problems		0.00	0.00		1	,	nonitor malfu	nction	0.00
d) Other known caus	es	0.00	0.00			c) QA cal			0.00
e) Unknown causes		0.00	0.00			,	known cause	es	0.00
f) Soot blowing		0.00	0.00		· ·	e) Unkno	wn causes		0.00
g) Fuel problems		0.00	0.00						
2 TOTAL DURATION		0.00	0.00		1		DURATION (•	0.00
3 PERCENT OF TOTA					1		IT OF TOTA	.L	
EXCESS EMISSION	S	0.00%	0.00%		'	CEM DO	WNTIME		0.00%
	FOR OPACITY, RE	ECORD ALL TI	MES IN MINUT	ES.	FOR GASI	ES, REC	ORD ALL TI	MES IN HO	JRS.
% Total Excess Emissions =		Total Duration	of Excess Emi	ission	ıs / (Total 0	Operating	g Time - CEN	/I Downtime)	•
% Total CEM Downtime =		CEM Downtin	ne / Total Opera	ating ¹	Time				
NOTES:									
If no exceedances: I certify the exceedances during the report valid.	•							•	•
SUBMITTED BY:	See certificat	ion page at	front of r	epor	t		_	DATE:	

REPORTING QUARTER:		Fourth, 2018	AQDFILE# #0203 (AI ID 447)
EMISSION UNIT(S):		36-B-6W	
POLLUTANT MONITORED:		S02 - lb/hr	<u></u>
DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
	`		
a) Startup/Shutdown 10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	_ NO excess emissions.	
i otai	0.00		
b) Control equipment			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	_	
d) Other known causes			
10/1/2018			
1/1/2019		_No excess emissions.	
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	_110 000000 011110010110.	
f) Soot blowing			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	=	
a) First markings			
g) Fuel problems			
10/1/2018		No avago omigaion-	
1/1/2019	0.00	No excess emissions.	
Total	0.00		

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		36-B-6W	
POLLUTANT MONITORED:		S02 - lb/mmbtu	
	TOTAL		
DATE/TIME	DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
b) Control equipment			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	_110 02000 07110010713.	
\			
e) Unknown causes 10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	_NO excess emissions.	
f) Soot blowing			
10/1/2018		No avenue aminaiana	
1/1/2019 Total	0.00	_No excess emissions.	
g) Fuel problems			
10/1/2018		Ma average endantes	
1/1/2019	0.00	No excess emissions.	
Total	0.00		

REPORTING QUARTER:		Fourth, 2018	AQD FILE # #0203 (AI ID 447)
EMISSION UNIT(S):		36-B-6W Fuel Gas Flow Rate	
POLLUTANT MONITORED:		S02	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total	0.00		
b) Non-monitor malfunction			
Total	0.00		
c) QA calibration			
Total	0.00		
d) Other known causes			
Total	0.00		
e) Unknown causes			

Total

0.00

AQD FILE#: #0203 (AI ID 447)

POLLUTANT (circle one):	SO2	NOx	СО	CO2 O2	TRS H2S	HCL	Opacity	
	Other:	Flow		MONITOR				
REPORTING QUARTER:	Fourth, 20	18		MODEL:	Fuel Gas	Flow Rat	e/FG H2S CEM	
FACILITY:				MFR:				
St. Paul Park I	Refining Co.	LLC						
				ENNOCION	LIBAITO AND AVER		_	
EMISSION SUBJECT ITEM:	EQUI21				LIMITS AND AVEF 38 lb SO2/hr			
EMICOIOTA CODUZOT TI EIVI.	BOULET						or rolling avg.	
EMISSION UNIT(S):	Reactor Ch	arge Heat	er					
	37-B-1			EMISSION	BASIS:	SIP for SO	02 NAAQS	
ASSOCIATED ITEMS:	TREA20, TR	EA21, COM	G7, COMG8,	EQUI163, EQUI	203, STRU89			
				TOTAL OP	ERATING HOURS	3		
				OF EMISSI	ON UNIT:	1839	_	
A. EMISSION DATA SUMMA	.RY			B. CEM PE	RFORMANCE SU	MMARY		
1 DURATION OF EXC	ESS EMISSION	S (HRS)						
		lb/hr	lb/mmbtu	1 DU	IRATION OF CEM	DOWNTIME	DURING	
a) Startup/Shutdown		0.00	0.00	sc	URCE OPERATION	ON (HRS)		
b) Control equipmen	-	0.00	0.00	1 '	Monitor malfunctio		0.00	
c) Process problems	-	0.00	0.00		Non-monitor malfu	ınction	0.00	
d) Other known caus	ses .	0.00	0.00	1 '	QA calibration		0.00	
e) Unknown causes	-	0.00	0.00	1 '	Other known cause	es	0.00	
f) Soot blowing	-	0.00	0.00	e)	Unknown causes		0.00	
g) Fuel problems		0.00	0.00					
2 TOTAL DURATION	• •	0.00	0.00		TAL DURATION (0.00	
3 PERCENT OF TOTA				1	RCENT OF TOTA	L		
EXCESS EMISSION	s .	0.00%	0.00%	CE	M DOWNTIME		0.00%	
	FOR OPACITY	r, RECORD	ALL TIMES IN	MINUTES. FOR G	SASES, RECORD	ALL TIMES I	N HOURS.	
% Total Excess Emissions =		Total Duration	on of Excess Er	nissions / (Total O	perating Time - C	EM Downtime	e)	
% Total CEM Downtime =		CEM Downti	me / Total Ope	ating Time				
NOTES:								
If no exceedances: I certify the exceedances during the report								
SUBMITTED BY:	- '	•	age at fron		•	DATE:		

REPORTING QUARTER:		Fourth, 2018	AQD FILE #:	#0203 (AI ID 447)
EMISSION UNIT(S):		37-B-1		
POLLUTANT MONITORED:		S02 - 1b/hr	_	
DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION CA	USE/CORRECTIVE ACTION	
a) Startup/Shutdown 10/1/2018 1/1/2019 Total	0.00	No excess emissions.		
b) Control equipment 10/1/2018 1/1/2019 Total	0.00	No excess emissions.		
c) Process problems 10/1/2018 1/1/2019 Total	0.00	No excess emissions.		
d) Other known causes 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.		
e) Unknown causes 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.		
f) Soot blowing 10/1/2018 1/1/2019 Total	0.00	No excess emissions.		
g) Fuel problems 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.		

REPORTING QUARTER:		Fourth, 2018	AQD FIL	E#: #0203	(AI ID 447)
EMISSION UNIT(S):		37-B-1			
POLLUTANT MONITORED:		S02 - 1b/mmbtu			
DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION	N	
a) Startup/Shutdown 10/1/2018 1/1/2019		No excess emissions.			
Total	0.00	-			
b) Control equipment 10/1/2018 1/1/2019 Total	0.00	No excess emissions.			
c) Process problems 10/1/2018 1/1/2019 Total	0.00	No excess emissions.			
d) Other known causes 10/1/2018 1/1/2019 Total	0.00	No excess emissions.			
e) Unknown causes 10/1/2018 1/1/2019 Total	0.00	No excess emissions.			
f) Soot blowing 10/1/2018 1/1/2019 Total	0.00	No excess emissions.			
g) Fuel problems 10/1/2018 1/1/2019 Total	0.00	No excess emissions.			

REPORTING QUARTER:		Fourth, 2018	AQDFILE#: #0203 (AI ID 447)	
EMISSION UNIT(S):		37-B-1 Fuel Gas Flow Rate		
POLLUTANT MONITORED:		S02		
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION		
a) Monitor malfunction				
Total	0.00	_		
b) Non-monitor malfunction				
Total	0.00	-		
c) QA calibration				
Total	0.00	-		
d) Other known causes				
Total	0.00	-		
e) Unknown causes				
Total	0.00	-		

AQDFILE#: #0203 (AI ID 447)

POLLUTANT (circle one):	SO2 Other:	NOx	CO	CO2	O2	TRS	H2S	HCL	Opacity
	Culei			-	MONITO	R			
REPORTING QUARTER:	Fourth, 20	18		_	MODEL:		Fuel Gas	Flow Rat	te/FG H2S CEM
FACILITY:					MFR:				
St. Paul Park F	Refining Co.	LLC		_	_		·		
				-	EMISSIO	N LIMIT	S AND AVE	RAGING TIN	νIΕ:
EMISSION SUBJECT ITEM:	EQUI26			_	_(0.78 1	502/hr	- 3 hour	rolling avg.
					Ĺ	1.75 11	SO2/mmb	tu - 3 ho	ur rolling avg.
EMISSION UNIT(S):	Product St	ripper Rek	ooiler	-	EMISSIO	N BASIS	S: .	SIP for S	SO2 NAAQS
ASSOCIATED ITEMS:	TREA22, TR	EA23, COMO	7, COMG8,	EQUI1	63, EQU	1204,	STRU88		
					TOTAL C	PERAT	ING HOURS	S	
					OF EMIS			1844	_
A. EMISSION DATA SUMMA	NDV				B CEMI	DEBEOR	RMANCE SU	IMMADV	<u> </u>
1 DURATION OF EXC		NS (HRS)			D. CLIVIT	LKI OI	VINANOE 3	NAME OF TAXABLE PARTY.	
		lb/hr	lb/mmbtu		1 1 [DURATI	ON OF CEM	1 DOWNTIN	IE DURING
a) Startup/Shutdowr	1	0.00	0.00	_		SOURCI	E OPERATION	ON (HRS)	
b) Control equipmen	nt	0.00	0.00	_	8	a) Monito	or malfunctio	n	0.00
c) Process problems	3	0.00	0.00		j t	o) Non-n	nonitor malfu	ınction	0.00
d) Other known caus	ses	0.00	0.00			c) QA ca	libration		0.00
e) Unknown causes		0.00	0.00	_	(d) Other	known caus	es	0.00
f) Soot blowing		0.00	0.00		6	e) Unkno	own causes		0.00
g) Fuel problems		0.00	0.00						
2 TOTAL DURATION	(HRS)	0.00	0.00		2 -	TOTAL [DURATION	(HRS)	0.00
3 PERCENT OF TOTA	AL			_	3 F	PERCEN	NT OF TOTA	AL.	
EXCESS EMISSION	IS	0.00%	0.00%	-	(CEM DC	WNTIME		0.00%
	FOR OPACIT	Y, RECORD	ALL TIMES IN	I MINU	TES. FOF	R GASE	S, RECORD	ALL TIMES	S IN HOURS.
% Total Excess Emissions =		Total Duration	on of Excess E	missio	ns / (Total	Operatir	ng Time - Cl	EM Downtim	ıe)
% Total CEM Downtime =		CEM Downt	me / Total Op	erating	Time				
NOTES:									
If no exceedances: I certify the no exceedances during the reinformation is valid.									
SUBMITTED BY:	See certif	ication pa	ge at from	t of	report			DATE:	

REPORTING QUARTER:		Fourth, 2018	AQD FILE # #0203 (AI ID 447)
EMISSION UNIT(S):		37-B-2	
POLLUTANT MONITORED:		S02 - 1b/hr	
	TOTAL DURATION		
DATE/TIME	(HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown 10/1/2018 1/1/2019		No excess emissions.	
Total	0.00		
b) Control equipment 10/1/2018 1/1/2019		_No excess emissions.	
Total	0.00		
c) Process problems 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
Total	0.00		
d) Other known causes 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
e) Unknown causes	-		
10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
Total	0.00		
f) Soot blowing 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
g) Fuel problems 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	

REPORTING QUARTER:		Fourth, 2018	AQD FIL	E#: #0203	(AI ID 447)	
EMISSION UNIT(S):		37-B-2	PVPH-			
POLLUTANT MONITORED:		S02 - lb/mmbtu				
DATE (FINE	TOTAL DURATION	MAY CONOTNIESTION	OALIOS IOODD SOTILIS ACTION			
DATE/TIME	(HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION	<u> </u>		
a) Startup/Shutdown 10/1/2018 1/1/2019		_No excess emissions.				
Total	0.00					
b) Control equipment 10/1/2018 1/1/2019		No excess emissions.				
Total	0.00	_				
c) Process problems 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.				
d) Other known causes 10/1/2018 1/1/2019 Total	0.00	No excess emissions.				
e) Unknown causes 10/1/2018 1/1/2019		No excess emissions.				
Total	0.00	_ INO excess entissions.				
f) Soot blowing 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.				
g) Fuel problems 10/1/2018 1/1/2019		_No excess emissions.				
Total	0.00					

REPORTING QUARTER:		Fourth, 2018	AQD FILE # #0203 (AI ID 447)
EMISSION UNIT(S):		37-B-2 Fuel Gas Flow Rate	
POLLUTANT MONITORED:		S02	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total	0.00	_	
b) Non-monitor malfunction			
Total	0.00	_	
c) QA calibration			
Total	0.00	-	
d) Other known causes			
Total	0.00	-	
e) Unknown causes			
Total	0.00	-	

AQD FILE#: #0203 (AI ID 447)

POLLUTANT (circle one):	SO2	NOx	CO	CO2	02	TRS	H2S	HCL	Opacity	
	Other:	Flow								
					MONITO	R				
REPORTING QUARTER:	Fourth, 20:	18			MODEL:		Fuel Gas	Flow Rate/F	G H2S CEM	
FACILITY:					MFR:					
St. Paul Park Ref	ining Co. L	LC								
					EMISSIC	ON LIMIT	AND AVERA	GE TIME:		
EMISSION SUBJECT ITEM:	COM0000000	026, <u>, EQ</u> U	JI24					3 hour roll		
EMICCION LINUT(O).	. 1					1.75 lb	SO2/mmbt	u - 3 hour r	olling avg.	
EMISSION UNIT(S):	Hydrogen P.		ers		EMISSIO	ON BASIS		CID for COS	NAAOG	
	38-B-1, 38-	-Б-2			ENIOSIC	JN DAGIG	,	SIP for SO2	NAAQS	-
ASSOCIATED ITEMS:	TREA16, TR	EA11, EQUI	24, EQUI163	, EQUI20	8, EQUI2	05, EQU	1162, STR	J87	-	
					OPERA	TING HOL	IRS OF EMI	SSION UNIT:		
					Of Livi			Total	Nat Gas	PSA Gas
								2079	2079	1994
										
A. EMISSION DATA SUMMAR							nce Summa			
DURATION OF EXCES	SS EMISSIONS	(HRS)		11- 11-				DOWNTIME DU	RING	
1 a) Startup/Shutdown			Ib/mmbtu 0.00	lb/hr 0.00		SOURCE	OPERATIO	N (HKS)	Nat Gas	PSA Gas
b) Control equipment			0.00	0.00	-	a) Monitor	malfunction		0.00	0.00
c) Process problems			0.00	0.00		-	onitor malfun		0.00	0.00
d) Other known causes	.		0.00	0.00	_	c) QA cali			0.00	0.00
e) Unknown causes			0.00	0.00	-	•	nown cause	S	0.00	0.00
f) Soot blowing			0.00	0.00		,	vn causes		0.00	0.00
g) Fuel problems			0.00	0.00						
2 TOTAL DURATION (HI	RS)		0.00	0.00	2	TOTAL D	URATION (H	RS)	0.00	0.00
3 PERCENT OF TOTAL					3	PERCEN'	T OF TOTAL			
EXCESS EMISSIONS			0.00%	0.00%	_	CEM DO	NNTIME		0.00%	0.00%
	FOR OPACIT	Y. RECORD	ALL TIMES IN	MINUTES	FOR GAS	ES RECO	ORD ALL TIM	MES IN HOURS.		
L		.,								
% Total Excess Emissions =		Total Duratio	on of Excess Er	nissions / (T	otal Opera	ting Time	- CEM Down	time)		
% Total CEM Downtime =		CEM Downti	me / Total Ope	rating Time						
NOTES:										
NOTES:										<u> </u>
				•			•			
If no exceedances: I certify that during the reporting period. I ce										xceedances
SUBMITTED BY:	•		ge at front	•				DATE:		

REPORTING QUARTER:		Fourth, 2018		AQD FILE#: #0203 (AI ID 447)
EMISSION UNIT(S):		38-B-1, 38-B-2		
POLLUTANT MONITORED:		SO2 lb/mmbtu	-	
	TOTAL			
	DURATION			
DATE/TIME	(HRS)	CONCENTRATION	CAUSE/CORRECTIVE ACTION	
a) Startup/Shutdown				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00			
b) Control equipment				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00			
c) Process problems				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00			
d) Other known causes				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00			
e) Unknown causes				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00	-		
O Coat blowing				
f) Soot blowing				
10/1/2018 1/1/2019		No excess emissions.		
Total	0.00	_ INO excess entissions.		
rota	0.00			
g) Fuel problems				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00			

REPORTING QUARTER:		Fourth, 2018		AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		38-B-1, 38-B-2		
POLLUTANT MONITORED:		SO2 lb/hr		
	TOTAL			
	DURATION	MAX.		
DATE/TIME	(HRS)	CONCENTRATION	CAUSE/CORRECTIVE ACTION	
a) Startup/Shutdown				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00			
h) Control oquinment				
b) Control equipment 10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00	_NO excess emissions.		
c) Process problems				
10/1/2018				
1/1/2019		No excess emissions.		
Totai	0.00	-		
d) Other known causes				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00			
e) Unknown causes				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00			
f) Soot blowing				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00	_		
g) Fuel problems				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00	_		

REPORTING QUARTER:		Fourth, 2018	AQDFILE#: #0203 (AI ID 447)
EMISSION UNIT(S):		38-B-1, 38-B-2	·····
POLLUTANT MONITORED:		Nat Gas Flow Rate	
	TOTAL DURATION		
DATE/TIME	(HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total	0.00	_	
b) Non-monitor malfunction			
Total	0.00	-	
c) QA calibration			
Total	0.00	-	
d) Other known causes			
Total	0.00	-	
e) Unknown causes			
Total	0.00	_	

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)	
EMISSION UNIT(S):		38-B-1, 38-B-2		
POLLUTANT MONITORED:		PSA Gas Flow Rate		
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION		
a) Monitor malfunction				
Total	0.00	-		
b) Non-monitor malfunction				
Total	0.00	_		
c) QA calibration				
Total	0.00	-		
d) Other known causes				
		_		
Total	0.00			
e) Unknown causes				
Total	0.00	-		

AQD FILE #: #0203 (AI ID 447)

REPORTING QUARTER: Pourth, 2018 MONTOR MODEL: Polytron IR Ex HC MFR: Drager, Inc. St. Paul Park Retining Co. LtC EMISSION SUBJECT ITEM: EQUIDODOCOCO28 EMISSION UNIT(S): Light old loadrack	POLLUTANT (circle one):	SO2	NOx CO	CO2 O2 TRS H2S HCL Opacity
REPORTING QUARTER: Fourth, 2018 MODEL: Polytron IR EX HC MODEL: Polytron IR EX HC St. Paul Park Retining Co. LLC St. Paul Park Retining Co. LLC EMISSION LIMIT AND AVERAGE TIME: 10 mg TOC/Liter of gaeoline loaded (6 hour avg) 0.74% - CBM limit setablished by stack tost as surrogate for 10 mg/L EMISSION UNIT(S): Light oil loadrack Vapor Recovery Unit ASSOCIATED ITEMS: TREALS, TREALS, EQUITION, STRUDIA TOTAL OPERATING HOURS OF EMISSION UNIT: 2076 A EMISSION DATA SUMMARY 1 DURATION OF EXCESS EMISSIONS (HRS) a) Startup/Shutdown b) Control equipment 0.00 b) Control equipment 0.00 b) Control equipment 0.00 b) Control equipment 0.00 b) Non-monitor malfunction 0.00 c) Honor nouses 0.00 d) Other known causes 0.00		Other:	TOC	
REPORTING QUARTER: Fourth, 2018 MODEL: Polytron IR EX HC MFR: Drager, Inc. St. Paul Park refining Co. LLC St. Paul Park refining Co. LLC EMISSION LIMIT AND AVERAGE TIME: 10 mg TOC/liter of gasoline loaded (6 hour avg) 0.74% - CBM limit established by stack test as surrogate for 10 mg/L EMISSION SUBJECT ITEM: REMOVED THEM: EMISSION SUBJECT ITEM: REMOVED THEM: REMOVED THEM: Associated for 10 mg/L EMISSION UNIT(S): Light oil loadrack Vapor Recovery Unit. ASSOCIATED ITEMS: TREASS, BOUISES, STRU31, STRU016 TOTAL OPERATING HOURS OF EMISSION UNIT: 2076 A EMISSION DATA SUMMARY 1 DURATION OF EXCESS EMISSIONS (HRS) a) Startup/Shutdown b) Control equipment 0.00 a) Startup/Shutdown b) Control equipment 0.00 a) Monitor malfunction 0.00 b) Ontrol equipment 0.00 a) Monitor malfunction 0.00 b) Ontrol equipment 0.00 b) Ontrol equipment 0.00 b) Ontrol equipment 0.00 c) QA calibration 0.00				MONITOR
FACILITY: St. Paul Park Refining Co. LLC EMISSION LIMIT AND AVERAGE TIME: 10 mg TOC/Liter of quasoline loaded (6 hour avg) 0.74% - CBM limit sespoils listed by stack test as surrogate for 10 mg/L EMISSION UNIT(S): Light oil loadrack Vapor Recovery Unit ASSOCIATED ITEMS: TREA18, TREA2S, EQUITER, STRU31, STRU016 TOTAL OPERATING HOURS OF EMISSION UNIT: 2076 A EMISSION DATA SUMMARY 1 DURATION OF EXCESS EMISSIONS (HRS) a) Startup/Shutdown b) Control equipment 0,00 c) Process problems 0,00 c) Process problems 0,00 c) Process problems 0,00 c) Unknown causes 0,00 c) Unknown causes 0,00 c) Unknown causes 0,00 c) Unknown causes 0,00 d) Other known causes 0,	REPORTING QUARTER:	Fourth, 2018		
St. Faul Park Refining Co. LLC 10 mg TOC/11cer of gasoline loaded (6 hour avg) 0.74 - CRM 1 linit established by stack test as surrogate for 10 mg/L				MFR: Drager, Inc.
EMISSION SUBJECT ITEM: EQUIDODODODOSS EMISSION UNIT(S): Light oil loadrack Vapor Recovery Unit. ASSOCIATED ITEMS: TREASS, EQUILES, STRU31, STRU316 ASSOCIATED ITEMS: TREASS, EQUILES, STRU31, STRU316 TOTAL OPERATING HOURS OF EMISSION UNIT: 2076 A EMISSION DATA SUMMARY 1 DURATION OF EXCESS EMISSIONS (HRS) a) Startup/Shutdown b) Control equipment 0.00 c) Process problems 0.00 d) Other known causes 0.00 d) Other known causes 0.00 e) Unknown causes 0.00 e) Unknown causes 0.00 e) Problems 0.00 g) Fuel	FACILITY:			
EMISSION UNIT(S): Light oil loadrack Vapor Recovery Unit ASSOCIATED ITEMS: TREA18, TREA25, EQUI168, STRU31, STRU016 TOTAL OPERATING HOURS OF EMISSION UNIT: 1 DURATION OF EXCESS EMISSIONS (HRS) a) Startup/Shutdown b) Control equipment 0,000 a) Monitor maffunction 0,00 a) Monito	St. Paul Park Re	efining Co. LLC		EMISSION LIMIT AND AVERAGE TIME:
EMISSION SUBJECT ITEM: EQUIDODO000028 EMISSION UNIT(S): Light oil loadrack Vapor Recovery Unit ASSOCIATED ITEMS: TREA18, TREA25, EQUI168, STRU31, STRU016 TOTAL OPERATING HOURS OF EMISSION UNIT: 2076 A. EMISSION DATA SUMMARY 1 DURATION OF EXCESS EMISSIONS (HRS) a) Startup/Shutdown b) Control equipment 0.00 SOURCE OPERATION (HRS) c) Process problems 0.00 b) Onhor malfunction 0.00 c) ONhormonion malfunction malfunction 0.00 c) ONHORMONION malfunction malfunction 0.00 c) ONHORMONION malfunction malfuncti				10 mg TOC/liter of gasoline loaded (6 hour avg)
EMISSION UNIT(S): Light oil loadrack				0.74% - CEM limit established by stack test
EMISSION UNIT(S): Light oil loadrack Vapor Recovery Unit ASSOCIATED ITEMS: TREA18, TREA25, EQUI168, STRU31, STRU016 TOTAL OPERATING HOURS OF EMISSION UNIT: 2076 A. EMISSION DATA SUMMARY 1 DURATION OF EXCESS EMISSIONS (HRS) 1 DURATION OF EXCESS EMISSIONS (HRS) 2 Startup/Shutdown 3 Startup/Shutdown 3 Ocorrect Recovery Unit 3 Ocorrect Recovery Unit 4 DURATION OF EXCESS EMISSIONS (HRS) 5 Ocorrect Recovery Unit 5 DURATION OF EXCESS EMISSIONS (HRS) 1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATINO (HRS) 2 Ocorrect Recovery Unit 3 Monitor malfunction 0 0.00 0 Diver known causes 0 0.00 0 Diver known causes 0 0.00 0 Ocorrect Recovery Unit 0 Other known causes 0 0.00 0 Ocorrect Recovery Unit 1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS) 0 0.00 0 Diver known causes 0 0.00 0 Diver known causes 0 0.00 0 Ocorrect Recovery Unit 0 Other known causes 0 0.00 0 Ocorrect Recovery Unit 0 Other known causes 0 0.00 0 Ocorrect Recovery Unit 0 Other known causes 0 0.00 0 Ocorrect Recovery Unit 0 Other known causes 0 0.00 0 Ocorrect Recovery Unit 0 Other Monov Cempon Component Cemponent				as surrogate for 10 mg/L
EMISSION UNIT(S): Light oil loadrack Vapor Recovery Unit ASSOCIATED ITEMS: TRRA18, TRRA25, EQUI168, STRU31, STRU016 TOTAL OPERATING HOURS OF EMISSION UNIT: 2076 A. EMISSION DATA SUMMARY I DURATION OF EXCESS EMISSIONS (HRS) a) Startup/Shutdown b) Control equipment 0,00 c) Process problems 0,00 d) Other known causes 0,00 e) Unknown causes 0,00 e) Unknown causes 0,00 g) Fuel problems 2 TOTAL DURATION (HRS) 3 PERCENT OF TOTAL EXCESS EMISSIONS FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. If no exceedances: Locatify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge the information is valid.	EMISSION SUBJECT ITEM:	EQUI0000000028		EMICOLON BACKS
ASSOCIATED ITEMS: TREA18, TREA25, EQUI168, STRU31, STRU016 TOTAL OPERATING HOURS OF EMISSION UNIT: 2076 A EMISSION DATA SUMMARY 1 DURATION OF EXCESS EMISSIONS (HRS) a) Startup/Shutdown 0,00 b) Control equipment 0,00 c) Process problems 0,00 d) Other known causes 0,00 e) Unknown causes 0,00 e) Unknown causes 0,00 e) Unknown causes 0,00 e) Unknown causes 0,00 g) Fuel problems 0,00 3 PERCENT OF TOTAL EXCESS EMISSIONS 0,00 EXCENSE	ENGICION LINUT(C):	Tight oil loads	ca ak	
ASSOCIATED ITEMS: TOTAL OPERATING HOURS OF EMISSION UNIT:	EMISSION UNIT(S).			40 CFR 63.422(b) NESHAP Subpart CC
A. EMISSION DATA SUMMARY 1 DURATION OF EXCESS EMISSIONS (HRS) 1 DURATION OF CEM DOWNTIME DURING 3) Startup/Shutdown 0.00 3) Monitor malfunction 0.00 0) Other known causes	vapor Recovery	UIIIC		
A. EMISSION DATA SUMMARY 1 DURATION OF EXCESS EMISSIONS (HRS) 1 DURATION OF CEM DOWNTIME DURING 3) Startup/Shutdown 0.00 3) Monitor malfunction 0.00 0) Other known causes ASSOCIATED ITEMS:	TREA18 TREA25	FOIIT168 STRII3	SI STRIIO16	
A. EMISSION DATA SUMMARY 1 DURATION OF EXCESS EMISSIONS (HRS) 1 DURATION OF CEM DOWNTIME DURING a) Startup/Shutdown 5 SOURCE OPERATION (HRS) b) Control equipment c) Process problems 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7,0000 m (TED TEMO)	11(2)1107 11(2)1237	in incompany bikos	JI, BIROUIO
A. EMISSION DATA SUMMARY 1 DURATION OF EXCESS EMISSIONS (HRS) 1 DURATION OF CEM DOWNTIME DURING a) Startup/Shutdown 5 SOURCE OPERATION (HRS) b) Control equipment c) Process problems 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0				TOTAL OPERATING HOURS
1 DURATION OF EXCESS EMISSIONS (HRS) a) Startup/Shutdown b) Control equipment c) Process problems d) Other known causes e) Unknown causes e) Unknown causes e) Unknown causes f) Soot blowing g) Fuel problems 2 TOTAL DURATION (HRS) 3 PERCENT OF TOTAL EXCESS EMISSIONS FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.				OF EMISSION UNIT: 2076
1 DURATION OF EXCESS EMISSIONS (HRS) a) Startup/Shutdown b) Control equipment c) Process problems d) Other known causes e) Unknown causes e) Unknown causes e) Unknown causes f) Soot blowing g) Fuel problems 2 TOTAL DURATION (HRS) 3 PERCENT OF TOTAL EXCESS EMISSIONS FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.				
a) Startup/Shutdown b) Control equipment c) Process problems d) Other known causes d) Other known causes e) O, 00 e) Unknown causes f) Soot blowing g) Fuel problems 2 TOTAL DURATION (HRS) 3 PERCENT OF TOTAL EXCESS EMISSIONS D, 00 EXCESS EMISSIONS D, 00 EXCESS EMISSIONS D, 00 EXCESS EMISSIONS D, 00 EXCESS EMISSIONS SOURCE OPERATION (HRS) a) Monitor malfunction D, 00 D) Non-monitor malfunction D, 00 D, 00 D) Non-monitor malfunction D, 00 D, 0	A. EMISSION DATA SUMMAR	RY		B. CEM PERFORMANCE SUMMARY
a) Startup/Shutdown b) Control equipment c) Process problems d) Other known causes d) Other known causes e) O, 00 e) Unknown causes f) Soot blowing g) Fuel problems 2 TOTAL DURATION (HRS) 3 PERCENT OF TOTAL EXCESS EMISSIONS D, 00 EXCESS EMISSIONS D, 00 EXCESS EMISSIONS D, 00 EXCESS EMISSIONS D, 00 EXCESS EMISSIONS SOURCE OPERATION (HRS) a) Monitor malfunction D, 00 D) Non-monitor malfunction D, 00 D, 00 D) Non-monitor malfunction D, 00 D, 0				
b) Control equipment c) Process problems d) Other known causes 0.00 e) Unknown causes 0.00 g) Fuel problems 2 TOTAL DURATION (HRS) 3 PERCENT OF TOTAL EXCESS EMISSIONS 0.00 EVALUATION CONTROL OF TOTAL EXCESS EMISSIONS 0.00 FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. **Total Duration of Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime) **Total CEM Downtime = CEM Downtime / Total Operating Time NOTES: **In on exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.		ESS EMISSIONS (HR	S)	1 DURATION OF CEM DOWNTIME DURING
c) Process problems d) Other known causes 0.00 c) QA calibration 0.00 e) Unknown causes 0.00 f) Soot blowing 0.00 g) Fuel problems 2 TOTAL DURATION (HRS) 3 PERCENT OF TOTAL EXCESS EMISSIONS FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. **Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime) **Total CEM Downtime = CEM Downtime / Total Operating Time NOTES: If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.	1		0.00	· · · ·
d) Other known causes e) Unknown causes f) Soot blowing g) Fuel problems 2 TOTAL DURATION (HRS) 3 PERCENT OF TOTAL EXCESS EMISSIONS FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime) **Total CEM Downtime = CEM Downtime / Total Operating Time NOTES: If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge their were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.				· · · · · · · · · · · · · · · · · · ·
e) Unknown causes f) Soot blowing g) Fuel problems 2 TOTAL DURATION (HRS) 3 PERCENT OF TOTAL EXCESS EMISSIONS FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. **Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime) **Total CEM Downtime = CEM Downtime / Total Operating Time NOTES: If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge their were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.	· · · · · ·			
f) Soot blowing g) Fuel problems 2 TOTAL DURATION (HRS) 3 PERCENT OF TOTAL EXCESS EMISSIONS Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime) **Total CEM Downtime = CEM Downtime / Total Operating Time **NOTES: To exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge their ewere no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.	1	es		
g) Fuel problems 2 TOTAL DURATION (HRS) 3 PERCENT OF TOTAL EXCESS EMISSIONS D.00\$ TOTAL DURATION (HRS) 0.00\$ 3 PERCENT OF TOTAL EXCESS EMISSIONS FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime) Total CEM Downtime = CEM Downtime / Total Operating Time NOTES: If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.	1		-	
2 TOTAL DURATION (HRS) 3 PERCENT OF TOTAL EXCESS EMISSIONS DONG DONG DONG DONG DONG DONG DONG DON	1			e) Offkriown causes 0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS O.00% FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. **Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime) Total CEM Downtime = CEM Downtime / Total Operating Time NOTES: If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.	1	JDC/		2 TOTAL DUBATION (UDS)
EXCESS EMISSIONS	,	,		· · · · · · · · · · · · · · · · · · ·
FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. % Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime) % Total CEM Downtime = CEM Downtime / Total Operating Time NOTES: If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.			0 00%	
% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime) % Total CEM Downtime = CEM Downtime / Total Operating Time NOTES: If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.	EXOLOG EMIGOIONO	•	0.00%	OLIVI DOVVINTINIE 0.00%
% Total CEM Downtime = CEM Downtime / Total Operating Time NOTES: If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.		FOR OPACITY, RE	CORD ALL TIMES IN	N MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.
NOTES: If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.	% Total Excess Emissions =	Tot	al Duration of Excess	Emissions / (Total Operating Time - CEM Downtime)
NOTES: If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.	% Total CEM Downtime =	CE	M Downtime / Total C	Operating Time
If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.				
exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.	NOTES.			
exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.	-			
exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.				
exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.				
SUBMITTED BY: See certification page at front of report DATE:	exceedances during the reportir			,
	SUBMITTED BY:	See certificati	on page at fron	nt of report DATE:

REPORTING QUARTER:		Fourth, 2018	AQD FILE # #0203 (AI ID 447)
EMISSION UNIT(S):		Light oil loadra	ck VRU
POLLUTANT MONITORED:		TOC	
DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown 10/1/2018 1/1/2019 _		No excess emissions.	
Total	0.00		
b) Control equipment 10/1/2018 1/1/2019 _		_ No excess emissions.	
Total	0.00		
c) Process problems 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.	
d) Other known causes 10/1/2018 1/1/2019 _		_ No excess emissions.	
Total	0.00		
e) Unknown causes 10/1/2018 1/1/2019 Total	0.00	_ No excess emissions.	
f) Soot blowing 10/1/2018 1/1/2019 _		_No excess emissions.	
Total	0.00		
g) Fuel problems 10/1/2018 1/1/2019	0.00	_ No excess emissions.	
Total	0.00		

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		Light oil loadrack VRU	
POLLUTANT MONITORED:		TOC	
DATE/TIME	TOTAL	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total	0.00		
b) Non-monitor malfunction			
Total	0.00	_	
c) QA calibration			
Total	0.00	<u></u>	
d) Other known causes			
	0.00	_	
e) Unknown causes			
Total	0.00		

AQD FILE #: #0203 (AI ID 447)

POLLUTANT (circle one):	SO2	NOx	CO	CO2	O2	TRS	H2S	HCL	Opacity	
	Other:	Temperature)							
	_				MONITO	R				
REPORTING QUARTER:	Fourth, 201	.8			MODEL:		Thermoco	ouple		
FACILITY:					MFR:	NA				
St. Paul Park R	efining Co	I.I.C			WIFT.					_
be. raar rark k	crining co.	BBC								
					EMISSIC	ON LIMIT AN	ID AVERAGE	TIME:		
EMISSION SUBJECT ITEM:	COM00000000	28				> 215°F -	3 hour r	olling av	verage	
	Unit Startu	ıp - 8/6/08								_
		•			EMISSIC	ON BASIS:	Title V	Permit		
EMISSION UNIT(S):	Light oil	oadrack								
	Permanent \	apor Combus	tor Unit	(PVC	U)	-				
ASSOCIATED ITEMS:	TREA26, EQU	JI28, EQUI41	, STRU32			-				
					TOTAL 6	200047110	LIQUIDO			
						OPERATING		* 0.0		
					OF EMIS	SSION UNIT		192	_	
A. EMISSION DATA SUMMAI	RY	·			B. CEM	PERFORMA	NCE SUMMA	ARY		٦
										٦
1 DURATION OF EXC	ESS EMISSION	S (HRS)			1	DURATION	OF CEM DO	WNTIME D	DURING	
a) Startup/Shutdown		_	0.00			SOURCE C	PERATION	(HRS)		
b) Control equipment		_	0.00		a) Monitor malfunction 0.00				0.00	
c) Process problems		<u>-</u>	0.00			b) Non-mon	itor malfuncti	on	0.00	
d) Other known cause	es	_	0.00			c) QA calibi	ration		0.00	
e) Unknown causes		_	0.00			d) Other kno	own causes		0.00	
f) Soot blowing		-	0.00			e) Unknown	causes		0.00	
g) Fuel problems			0.00							
2 TOTAL DURATION (-	0.00		1		RATION (HR	S)	0.00	ŀ
3 PERCENT OF TOTA					3	PERCENT				Ì
EXCESS EMISSION	IS	-	0.00%			CEM DOW	NIIME		0.00%	
					1					\dashv
	FOR OPACITY	, RECORD AL	L TIMES IN	I MINU	res. For	R GASES, R	ECORD ALL	TIMES IN F	HOURS.	
0/ T / / 5 Fortain		Talab Davidson				· · ·	054.5			
% Total Excess Emissions =		Total Duration o			•	Operating Fir	me - CEM Do	wntime)		
% Total CEM Downtime =		CEM Downtime	e / Total Ope	erating	Time					
NOTES:										_
						· · · · · · · · · · · · · · · · · · ·				_
If no avecadances: I cortify the	at the required or	alvess were m	ado that i a	m famil	ior with th	o roculto, on	d that to the h	oot of my k	nowledge there were no	
If no exceedances: I certify that exceedances during the reporting valid.										1
SUBMITTED BY:	See certifi	.cation page	e at from	nt of	report			DATE:		
JJ2							_			_

REPORTING QUARTER:		Fourth, 2018		AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		Light oil loadrach	Process Vapor Burner	(F
POLLUTANT MONITORED:		Temperature		
DATE/TIME	TOTAL DURATION (HRS)	MIN.TEMPERATURE	CAUSE/CORRECTIVE ACT	ION
a) Startup/Shutdown 10/1/2018 1/1/2019		_No excess emissions.		
Total	0.00			
b) Control equipment 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.		
c) Process problems				
1/1/2019		No excess emissions.		
Total	0.00	_		
d) Other known causes 10/1/2018 1/1/2019 Total	0.00	No excess emissions.		
e) Unknown causes 10/1/2018 1/1/2019	0.00	No excess emissions.		
Total	0.00	_140 0,0000 01110010110.		
f) Soot blowing 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.		
g) Fuel problems 10/1/2018 1/1/2019		No excess emissions.		
Total	0.00	_		

REPORTING QUARTER:		Fourth, 2018	AQD FILE # #0203 (AI ID 447)	
EMISSION UNIT(S):		Light oil loadrack - PVB		
POLLUTANT MONITORED:		Temperature		
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION		
a) Monitor malfunction				
Total	0.00	_		
b) Non-monitor malfunction				
Total	0.00	_		
c) QA calibration				
Total	0.00	_		
d) Other known causes				
Total	0.00	_		
e) Unknown causes				
Total	0.00	_		

POLLUTANT (circle one):	SO2 NOx) CO CO2 O2 TRS	H2S	HCL Opacity Other				
Other:	This report addresses Flare SARA reportable emissions, pilot monitoring, pilot flame outages, and SO2 monitoring.							
REPORTING QUARTER:	R: Fourth, 2018 MONITOR							
		MODEL SOLA II	Dual Range	<u> </u>				
FACILITY:		MFR: Thermo S	Scientific					
St. Paul Park Refin	ning Co. LLC							
		EMISSION LIMIT A	ND AVERAGE	TIME:				
EMISSION SUBJECT ITEM:	TREA13							
EMISSION UNIT(S):		EMISSION BASIS:						
TREA13 Refinery fla	re stack	40 CFR 6	3 NESHAP S	Subpart CC, Subpart Ja				
ASSOCIATED ITEMS:	FUGI73	ī	OTAL OPERA	TING HOURS				
		C	F EMISSION	UNIT:		2208		
A. EMISSION DATA SUMMA	ARY	B. CEM PERFORMANCE SUMMAR	Y (Scanner)	C. CEM PERFORMANCE SUMMARY	(SO2)	D. CEM PERFORMANCE SU	JMMARY (Pilots)	
1 DURATION OF SARA RE	PORTABLE	1 DURATION OF CEM DOWN	TIME	1 DURATION OF CEM DOWN	TIME	DURATION OF PILOT DOW	NTIME	
EMISSIONS (HRS)	SO2 NOx	DURING SOURCE OPERAT	ION (HRS)	DURING SOURCE OPERAT	ON (HRS)	DURING SOURCE OPERATI	ION (HRS)	
a) Startup/Shutdown	0.00 0.00	a) Monitor malfunction	0.00	a) Monitor malfunction	0.00	a) Pilot malfunction	0.00	
b) Control equipment	0.00 0.00	b) Non-monitor malfunctior_	0.00	b) Non-monitor malfunction	0.00	b) Other known causes _	0.00	
c) Process problems	0.00 0.00	c) QA calibration	0.00	c) QA calibration	3.00	c) Unknown causes	0.00	
d) Other known causes	0.00 0.00	d) Other known causes	0.00	d) Other known causes	108.00			
e) Unknown causes	0.00 0.00	e) Unknown causes	0.00	e) Unknown causes	0.00	TOTAL DURATION (HRS)	0.00	
f) Soot blowing	0.00 0.00					PERCENT OF TOTAL		
g) Fuel problems	0.00 0.00	2 TOTAL DURATION (HRS)_	0.00	2 TOTAL DURATION (HRS)	111.00	PILOT DOWNTIME _	0.00%	
2 TOTAL DURATION (HRS)	0.00 0.00	3 PERCENT OF TOTAL		3 PERCENT OF TOTAL				
3 PERCENT OF TOTAL		CEM DOWNTIME	0.00%	CEM DOWNTIME	5.03%			
EXCESS EMISSIONS	0.00% 0.00%	_						
	FOR OPACITY, RECO	ORD ALL TIMES IN MINUTES. FOR	GASES, REC	ORD ALL TIMES IN HOURS.		•		
% Total Excess Emissions =	Total Du	ration of SARA Reportable Emissions	/ (Total Opera	ating Time - CEM Downtime)				
% Total CEM Downtime =	CEM Do	wntime / Total Operating Time						
NOTES:								
				<u> </u>				
		., ., ., ., ., ., ., ., ., ., ., ., ., .						
If no exceedances: I certify the	hat the required analyse	es were made, that I am familiar with t	the results, and	d that to the best of my knowledge there	е were по ехо	eedances during the reporting	period certify that I	
	a	m familiar with the information in this		t to the best of my knowledge the inform			panali i animi mati	
SUBMITTED BY:	See certification	on page at front of report				DATE:		

SARA Reportable Emissions Report - SO2 (i.e., > 500 lbs)

REPORTING QUARTER:	<u>_</u> F	ourth, 2018	=		AQD FILE # #0203 (AT ID 447)
EMISSION UNIT(S):	<u>T</u>	REA13 Refinery fl	are stack		
POLLUTANT MONITORED:	<u>.s</u>	02	_		
DATE/TIME	TOTAL DURATION (HRS)	APPROX. SO2 EMITTED (LBS)	CAUSE/CORRECTIVE ACTION		
a) Startup/Shutdown					
10/1/2018 1/1/2019					
Total	0.00				
b) Control equipment 10/1/2018					
1/1/2019 Total					
	0.00				
c) Process problems 10/1/2018					
1/1/2019 Total	0.00				
d) Other known causes					
10/1/2018 1/1/2019					
Total	0.00				
e) Unknown causes 10/1/2018					
1/1/2019 Total	0.00				
f) Soot blowing				•	
10/1/2018 1/1/2019					
Total	0.00				
g) Fuel problems					
10/1/2018 1/1/2019					
Total	0.00				

SARA Reportable Emissions Report - NO2 (i.e., > 1000 lbs)

REPORTING QUARTER:	<u>F</u>	ourth, 2018	_	AQDFILE#: #0203 (AI ID 447)
EMISSION UNIT(S):	<u> 1</u>	REA13 Refinery fl	are stack	
POLLUTANT MONITORED:	N	A (NOx is calcula	ited)	
DATE/TIME	TOTAL DURATION (HRS)	APPROX, NO2 EMITTED (LBS)	CAUSE/CORRECTIVE ACTION	
a) Startup/Shutdown 10/1/2018 1/1/2019 Total				
b) Control equipment 10/1/2018 1/1/2019				
Total	0.00			
c) Process problems 10/1/2018 1/1/2019 Total	0.00			
d) Other known causes 10/1/2018 1/1/2019 Total	0.00			
e) Unknown causes 10/1/2018 1/1/2019 Total				
f) Soot blowing 10/1/2018 1/1/2019 Total				
g) Fuel problems 10/1/2018 1/1/2019				
lotai	0.00			

REPORTING	QUARTER:		Fourth, 2018	AQD FILE#: #0203 (AI ID 447)
EMISSION U	NIT(\$):		TREA13 Refinery flare stack	
POLLUTANT	MONITORED:		<u>S02</u>	
		TOTAL DURATION		
DATE/TIM	IE	(HRS)	CAUSE/CORRECTIVE ACTION	
c) QA calibra				
	1/20/2018 13:00			
	1/20/2018 16:00	3.00	Quarterly calibration gas audit.	
Total		3.00		
d) Other know	vn causes			
-,	10/9/2018 7:00			
	10/9/2018 9:00	2.00	Preventive maintenance	
1	0/14/2018 15:00			
	0/14/2018 17:00	2.00	Preventive maintenance	
	11/5/2018 7:00			
	11/5/2018 8:00	1.00	Preventive maintenance	
	12/6/2018 11:00			
	12/6/2018 13:00	2.00	Preventive maintenance	
	12/11/2018 7:00			
	12/11/2018 9:00	2.00	Troubleshooting	
	2/12/2018 10:00		•	
1	2/12/2018 11:00	1.00	Troubleshooting	
	12/15/2018 8:00		•	
1	2/15/2018 11:00	3.00	Preventive maintenance	
1	2/17/2018 10:00			
1	2/17/2018 14:00	4.00	Preventive maintenance	
	12/18/2018 7:00			
1	2/18/2018 17:00	10.00	Troubleshooting	
	12/19/2018 8:00			
1	2/19/2018 10:00	2.00	Troubleshooting	
1	2/19/2018 11:00			
1	2/22/2018 15:00	76.00	Troubleshooting	
	12/27/2018 8:00			
1	2/27/2018 11:00	3.00	Troubleshooting	
Total		108.00		
e) Unknown o	causes			

0.00

Total

FLARE SCANNER DOWNTIME REPORT

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		TREA13 Refinery flare stack	
POLLUTANT MONITORED:		Flame Presence (Non-Pollutant)	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total	0.00		
b) Non-monitor malfunction			
Total	0.00		
c) QA calibration			
Total	0.00		
d) Other known causes			
Total	0.00		
e) Unknown causes			
Total	0.00		

FLARE PILOT DOWNTIME REPORT

REPORTING QUARTER:		Fourth, 2018	AQD FILE # #0203 (AI ID 447)
EMISSION UNIT(S):		TREA0000000013	
POLLUTANT MONITORED	:	Flame Presence (Non-Pollutant)	
DATE/TIME	TOTAL DURATION (HRS)	I CAUSE/CORRECTIVE ACTION	
a) Pilot malfunction			
10/1/20 1/1/20			
Total	0.00	_	
b) Other known causes			
10/1/20 1/1/20			
Total	0.00	-	
c) Unknown causes			
10/1/20 1/1/20			
Total	0.00	-	

AQD FILE#: #0203 (AI ID 447)

MONITOR MODEL: MODEL: MOD	POLLUTANT (circle one):	SO2	NOx	CO	CO2	02	TRS	H2S	HCL	Opacity	
MODEL: 0.024 GC		Other:	Temp		-						
MFR ABB St. Paul Park Refining Co. LLC EMISSION LIMIT AND AVERAGE TIME: 150 ppm H28 - 365 day rolling average > 1400 DRGF - 3 hour rolling average > 1400 DRGF - 3 hour rolling average > 1400 DRGF - 3 hour rolling average > 140 CRR 52.21 MN Rule 7007.0800, Subp. 2 MN Rule 7007.0800, Subp. 2 TOTAL OPERATING HOURS OF EMISSION DATA SUMMARY DURATION OF EXCESS EMISSIONS (HRS) H28 Temperature DURATION OF CEM DOWNTIME DURING SOURCE OPERATING HOURS O 0.00 0.00	DEDORTING OUADTED.	,	_								
St. Paul Park Refining Co. LLC	REPORTING QUARTER:	Fourth, 201	8		-	MODEL	:	002A GC			
St. Paul Park Refining Co. LLC	FACILITY:					MFR:		ABB			
EMISSION SUBJECT ITEM: TREAS 150 ppm #128 - 365 day rolling average EMISSION UNIT(S)	St. Paul Park Re	efining Co. L	LC								
EMISSION UNIT(S):					-	EMISSI	ON LIMIT	AND AVER	AGE TIME:		
EMISSION UNIT(S): M.W.T.P. Thermal Oxidizer (SEC Vent Gas / TO Temperature) EMISSION BASIS: 40 CPR 52.21 MR Rule 7007.0800, Subp. 2	-		* *		-		150 pp	m_H2S3	365 day ro	olling aver	age
ASSOCIATED ITEMS: Comparison Comparison	EMISSION SUBJECT ITEM:	TREA5			-		> 1400	DEGF - 3	hour roll	ling averag	e
ASSOCIATED ITEMS: CREC Vent Gas / TO Temperature EMISSION BASIS: 40 CFR 52.21	EMISSION UNIT(S):	ww.rp rh	ermal Oxio	dizer							
ASSOCIATED ITEMS: BQUI209, STRU22, SV065					- :)	EMISSI	ON BASI	S:			
ASSOCIATED ITEMS: BQUI209, STRU22, SV065 NR Rule 7007,0800, Subp. 2 TOTAL OPERATING HOURS OF EMISSION UNIT: 2202			,		<u>-</u> ′						
A. EMISSION DATA SUMMARY	ASSOCIATED ITEMS:	EOUT209. ST	RU22. SVO	65					Subp 2		
A. EMISSION DATA SUMMARY B. CEM PERFORMANCE SUMMARY	, 10000 M (125 (12M))	BQ01209, B1	ROLL, BVO.		-		TOTAL COLUMN	, , , , , , , , , , , , , , , , , , , ,	очьр. 2		
A. EMISSION DATA SUMMARY B. CEM PERFORMANCE SUMMARY						TOTAL	OPERAT	ING HOURS			
A. EMISSION DATA SUMMARY 1 DURATION OF EXCESS EMISSIONS (HRS) H28 Temperature a) Startup/Shutdown b) Control equipment c) 0.00 c) Process problems 0.00 d) Other known causes 0.00 d) Other known causes 0.00 e) Unknown causes 0.00 f) Soot blowing 0.00 g) Fuel problems 0.00 2 TOTAL DURATION (HRS) 3 PERCENT OF TOTAL EXCESS EMISSIONS 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.											
1 DURATION OF EXCESS EMISSIONS (HRS) A) Startup/Shutdown D) Control equipment D) D) Control equipment D) D) Control equipment D) D) Control equipment D) D						Of Livin	00.011 0		2202	-	
a) Startup/Shutdown b) Control equipment c) Process problems 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	A. EMISSION DATA SUMMAI	RY				B. CEM	PERFO	RMANCE SU	MMARY		
a) Startup/Shutdown b) Control equipment c) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	1 DURATION OF EXC	ESS EMISSIONS	(HRS)					-			
b) Control equipment c) Process problems 0.00 0.00 0.00 b) Non-monitor malfunction 0.00 0.00 0.00 d) Other known causes 0.00 0.00 d) Other known causes 6.00 0.00 e) Unknown causes 0.00 0.00 g) Fuel problems 2 TOTAL DURATION (HRS) 3 PERCENT OF TOTAL EXCESS EMISSIONS 0.00 0.00 0.00 2 TOTAL DURATION (HRS) 3 PERCENT OF TOTAL CEM DOWNTIME 0.27 0.00 EVALUATION CONTINUES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. **Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime) **Total CEM Downtime = CEM Downtime / Total Operating Time NOTES: SPPRC's SBC's were converted to an activated sludge aerator system in June 2014. **SBC's are no longer in-use.** If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this				H2S	Temperature	1	DURATI	ON OF CEM	DOWNTIME	E DURING	
c) Process problems d) Other known causes 0.00 0.00 e) Unknown causes 0.00 0.00 f) Soot blowing 0.00 0.00 2 TOTAL DURATION (HRS) 3 PERCENT OF TOTAL EXCESS EMISSIONS 0.00 0.00 EXCESS EMISSIONS 0.00 0.00 FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. **FOR OPACITY, RECORD ALL TIMES Emissions / (Total Operating Time - CEM Downtime) **Total CEM Downtime = CEM Downtime / Total Operating Time **NOTES: SPPRC's SBC's were converted to an activated sludge aerator system in June 2014. **If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this	a) Startup/Shutdown			0.00	0.00	_	SOURC	E OPERATIO	ON (HRS)	H2S	Temperature
d) Other known causes e) 0.00 0.00 c) QA calibration 0.00 0.00 0.00 e) Unknown causes f) Soot blowing g) Fuel problems 2 TOTAL DURATION (HRS) 3 PERCENT OF TOTAL EXCESS EMISSIONS O.00 0.00 0.00 c) TOTAL DURATION (HRS) 5.00 0.00 0.00 c) TOTAL DURATION (HRS) 6.00 0.00 c) FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. FOR OPACITY SEC	b) Control equipment			0.00	0.00		a) Monit	or malfunctio	n	0.00	0.00
e) Unknown causes f) Soot blowing g) Fuel problems 2 TOTAL DURATION (HRS) 3 PERCENT OF TOTAL EXCESS EMISSIONS FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. FOR OPACITY RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. FOR OPACITY RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. FOR OPACITY RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. FOR OPACITY RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. FOR OPACITY RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. FOR OPACITY RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. FOR OPACITY RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. FOR OPACITY RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. FOR OPACITY RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. FOR OPACITY RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. FOR OPACITY RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. FOR OPACITY RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. FOR OPACITY RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.	c) Process problems			0.00	0.00	_]	b) Non-r	nonitor malfu	nction	0.00	0.00
for opacity, record all times in minutes. For Gases, record all times in hours. Total Duration of Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time NOTES: SPPRC's SBC's were converted to an activated sludge aerator system in June 2014. SBC's are no longer in-use. Punch of that lam familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this	d) Other known cause	es		0.00	0.00		c) QA ca	alibration		0.00	0.00
g) Fuel problems 2 TOTAL DURATION (HRS) 3 PERCENT OF TOTAL EXCESS EMISSIONS 0.00 0.00 3 PERCENT OF TOTAL EXCESS EMISSIONS FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. We Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime) Total CEM Downtime = CEM Downtime / Total Operating Time NOTES: SPPRC's SBC's were converted to an activated sludge aerator system in June 2014. SBC's are no longer in-use. If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this	e) Unknown causes			0.00	0.00	_	d) Other	known cause	es	6.00	0.00
2 TOTAL DURATION (HRS) 3 PERCENT OF TOTAL EXCESS EMISSIONS 0.00 0.00 3 PERCENT OF TOTAL EXCESS EMISSIONS 0.00% 0.00% CEM DOWNTIME 0.27% 0.00% FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. **Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime) **Total CEM Downtime = CEM Downtime / Total Operating Time NOTES: SPPRC's SBC's were converted to an activated sludge aerator system in June 2014. SBC's are no longer in-use. If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this	f) Soot blowing			0.00	0.00		e) Unkno	own causes		0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS 0.00% 0.00% 0.00% FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. **Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime) **Total CEM Downtime = CEM Downtime / Total Operating Time **NOTES: SPPRC's SBC's were converted to an activated sludge aerator system in June 2014. SBC's are no longer in-use. **If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this	g) Fuel problems			0.00	0.00]				-	
EXCESS EMISSIONS 0.00% 0.00% CEM DOWNTIME 0.27% 0.00% FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. % Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime) % Total CEM Downtime = CEM Downtime / Total Operating Time NOTES: SPPRC's SBC's were converted to an activated sludge aerator system in June 2014. SBC's are no longer in-use. If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this	2 TOTAL DURATION (I	HRS)		0.00	0.00	2	TOTAL I	DURATION (HRS)	6.00	0.00
FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS. % Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime) % Total CEM Downtime = CEM Downtime / Total Operating Time NOTES: SPPRC's SBC's were converted to an activated sludge aerator system in June 2014. SBC's are no longer in-use. If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this	3 PERCENT OF TOTAL	L				3	PERCE	NT OF TOTA	L		
% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime) % Total CEM Downtime = CEM Downtime / Total Operating Time NOTES: SPPRC's SBC's were converted to an activated sludge aerator system in June 2014. SBC's are no longer in-use. If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this	EXCESS EMISSION:	S		0.00%	0.00%	-	CEM DO	OWNTIME		0.27%	0.00%
% Total CEM Downtime = CEM Downtime / Total Operating Time NOTES: SPPRC's SBC's were converted to an activated sludge aerator system in June 2014. SBC's are no longer in-use. If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this		FOR OPACITY	, RECORD A	ALL TIMES IN	MINUTES. FOR	R GASES	, RECOP	RD ALL TIME	S IN HOURS	S.	
% Total CEM Downtime = CEM Downtime / Total Operating Time NOTES: SPPRC's SBC's were converted to an activated sludge aerator system in June 2014. SBC's are no longer in-use. If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this											
NOTES: SPPRC's SBC's were converted to an activated sludge aerator system in June 2014. SBC's are no longer in-use. If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this	% Total Excess Emissions =		Total Duration	n of Excess E	missions / (Total	Operating	g Time - (CEM Downtin	ne)		
SBC's are no longer in-use. If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this	% Total CEM Downtime =		CEM Downtir	me / Total Op	erating Time						
SBC's are no longer in-use. If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this	NOTES: SPPRC's SBC's we	ere converted	to an act	ivated sl	udge aerator	svstem	in Jur	ne 2014.			
If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this											
during the reporting period. I certify that I am familiar with the information in this											
during the reporting period. I certify that I am familiar with the information in this											
SUBMITTED BY: See certification page at front of report DATE:						e results,	and that	to the best of	f my knowled	ge there were	no exceedances
	, ,	•						_	DATE:		

REPORTING QUARTER:		Fourth, 2018		AQD FILE#: #0203 (AI ID 447)
EMISSION UNIT(S):		W.W.T.P. Thermal Ox	kidizer	
POLLUTANT MONITORED:		H2S		
_DATE/TIME	TOTAL DURATION (HRS)	MAX. CONC. (150 ppm, 365 day average)	CAUSE/CORRECTIVE ACTION	
a) Startup/Shutdown 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.		
b) Control equipment 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.		
c) Process problems 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.		
d) Other known causes 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
e) Unknown causes 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.		
f) Soot blowing 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.		
g) Fuel problems 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.		

REPORTING QUARTER:		Fourth, 2018		AQD FILE#: #0203 (AI ID 447)
EMISSION UNIT(S):		W.W.T.P. Thermal On	xidizer	
POLLUTANT MONITORED:		Temperature		
DATE/TIME	TOTAL DURATION (HRS)	MIN. TEMP. (°F, 3-hr average)	CAUSE/CORRECTIVE ACTION	
a) Startup/Shutdown 10/1/2018 1/1/2019 Total	0.00	No excess emissions.		
b) Control equipment 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.		
c) Process problems 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.		
d) Other known causes 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.		
e) Unknown causes 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.		
f) Soot blowing 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.		
g) Fuel problems 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.		

REPORTING QUARTER:		Fourth, 2018	AQD FILE#: #0203 (AI ID 447)
EMISSION UNIT(S):		W.W.T.P. Thermal Oxidizer	
POLLUTANT MONITORED:		н2S	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total -	0.00	-	
	0.00		
b) Non-monitor malfunction			
Total -	0.00	_	
c) QA calibration			
Total -	0.00	-	
d) Other known causes 10/4/2018 11:00			
10/4/2018 13:00 10/5/2018 9:00	2.00	Communications error	
10/5/2018 10:00 10/12/2018 13:00	1,00	Communications error	
10/12/2018 16:00	3.00	Preventative maintenance	
Total	6.00	-	
e) Unknown causes			
Total -	0.00	-	

REPORTING QUARTER:		Fourth, 2018	AQD FILE#: #0203 (AI ID 447)
EMISSION UNIT(S):		W.W.T.P. Thermal Oxidizer	_
POLLUTANT MONITORED:		Temperature	_
DATE/TIME	TOTAL	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total	0.00	_	
b) Non-monitor malfunction			
Total	0.00	_	
c) QA calibration			
Total	0.00	_	
d) Other known causes			
Total	0.00		
e) Unknown causes			
Total	0.00		

AQD FILE #: #0203 (AI ID 447)

POLLUTANT (circle one):	SO2	NOx	CO	CO2	O2	TRS	H2S	HCL	Opacity	
	Other:	Temp								
	_			•	MONITO	R				
REPORTING QUARTER:	Fourth, 2018			-	MODEL:		Thermoco	uple		
FACILITY:					MFR:					
St. Paul Park Refi	ning Co. LLC			_	_					
				_						
				-	EMISSIO	N LIMIT	AND AVERA	AGE TIME:		
EMISSION SUBJECT ITEM:	COMG13			-		> 1400	DEGF - 3	hour roll	ling averag	re
EMISSION UNIT(S):	W.W.T.P. The			-	EMISSIO					
	(N ₂ Vent Gas	/ TO Temp	perature)	-			61.349(a)			
					1	AN Rule	7011.993	0, Sub.E		
ASSOCIATED ITEMS:	TREA5, EQUI2	09, STRU2:	2, SV065	-						
					TOTAL C		ING HOURS			
					OF EMIS			2202		
					OF LIVIS	SION OI	-	2202	•	
A. EMISSION DATA SUMMAR					B. CEM F	PERFOR	MANCE SU	MMARY		,
1 DURATION OF EXCESS		RS)								-
	•	•	Temperature		1 [DURATION	ON OF CEM	DOWNTIME	E DURING	
a) Startup/Shutdown			0.00		;	SOURCE	OPERATIO	N (HRS)		Temperature
b) Control equipment		_	0.00	_	1 8	a) Monito	or malfunction	n		0.00
c) Process problems			0.00	_	į t) Non-n	nonitor malfu	nction		0.00
d) Other known causes		_	0.00	_	(c) QA ca	libration			0.00
e) Unknown causes		_	0.00	_	0	d) Other	known cause	es		0.00
f) Soot blowing		_	0.00	_	6	e) Unkno	wn causes			0.00
g) Fuel problems		_	0.00							
2 TOTAL DURATION (HR	(S)	_	0.00	_	2 7	FOTAL [DURATION (HRS)		0.00
3 PERCENT OF TOTAL					3 F	PERCEN	IT OF TOTA	.L		
EXCESS EMISSIONS		_	0.00%	-		CEM DC	WNTIME			0.00%
					.]					
	FOR OPACITY,	RECORD AL	L TIMES IN MIN	UTES.	FOR GAS	ES, RE	CORD ALL 1	TIMES IN HO	OURS.	
% Total Excess Emissions =	Т	otal Duration	of Excess Emiss	ions / (Total Oper	ating Tir	ne - CEM Do	wntime)		
% Total CEM Downtime =	С	EM Downtim	e / Total Operatir	ng Time		_		,		
NOTES:										
110120.										
If no exceedances: I certify that exceedances during the reporti	•	•				ilts, and	that to the be	est of my kno	wledge there	were no
SUBMITTED BY:			e at front of					DATE:		

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		W.W.T.P. Thermal Oxidizer	<u> </u>
POLLUTANT MONITORED:		Temperature	
	TOTAL		
DATE/TIME	DURATION (HRS)	MIN. TEMP. (°F, 3-hr average) CA	AUSE/CORRECTIVE ACTION
D, ((E) (INVIE	(1.11.15)		
a) Startup/Shutdown			
10/1/2018		Ma access and advance	
1/1/2019 _ Total	0.00	No excess emissions.	
I Ofai	0.00		
b) Control equipment			
10/1/2018			
1/1/2019 _		No excess emissions.	
Total	0.00		
c) Process problems			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019 _	0.00	No excess emissions.	
Total	0.00		
e) Unknown causes			
10/1/2018			
1/1/2019 _		No excess emissions.	
Total	0.00		
O Ocathlaufa a			
f) Soot blowing 10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	_NO exacts difficulties.	
g) Fuel problems			
10/1/2018		Ma average aminaiana	
1/1/2019 _	0.00	No excess emissions.	
Total	0.00		

REPORTING QUARTER:		Fourth, 2018	AQD FILE # #0203 (AI ID 447)
EMISSION UNIT(S):		W.W.T.P. Thermal Oxidizer	
POLLUTANT MONITORED:		Temperature	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total	0.00	_	
b) Non-monitor malfunction			
Total	0.00	-	
c) QA calibration			
Total	0.00	-	
d) Other known causes			
Total	0.00	-	
e) Unknown causes			
Total	0.00	-	

AQD FILE #: #0203 (AI ID 447)

POLLUTANT (circle one): SO2 NOx CO CO2	O2 TRS H2S H	CL Opacity		
Other: SO2 also a surrogate fo	r MACT Subpart UUU HAP E	nissions		
	MONI			
REPORTING QUARTER: Fourth, 2018	MODE	:L: Advance Optim	a, Limas 11, NDUV	
FACILITY:	MFR:	ABB		
St. Paul Park Refining Co. LLC	_			
EMICOLONIC DE LEGE LEGIS	EMIS	SION LIMIT AND AVERAG		
EMISSION SUBJECT ITEM: <u>EQUI33</u>		250 ppmd, 02	free - 12 hour rolling average	
EMISSION UNIT(S):	EMIS	SION BASIS:		
#3 SRU/SCOT unit		40 CFR 60 NSP	S Subpart J	
Unit Startup - 11/16/2004, CEM Startup 11/1	16/04	40 CFR 63.156	8 Table 29 Opt 1a MACT Subpart	עטע
ADDOORATED TELLO				
ASSOCIATED ITEMS: TREA4, COMG7, EQUI163, EQUI296, EQ	OTZIO, EQUIZII, STRU6			
PROCESS UNIT DESCRIPTIO EU0083 is a 4-Stage Claus Sulfur R	ecovery Unit with a tail	Gas Treating Unit.		
The train includes the SRU inciner	ator. The sulfur unit	is designed to proce	ess 50 LTPD.	
	TOTAL OPERATING	IOU IDO		
	TOTAL OPERATING F OF EMISSION UNIT:			
	OF EMISSION UNIT.	2008		
A. EMISSION DATA SUMMARY	B. CEM PERFORMANCE SUM	MARY	C. SRU BYPASS INFORMATION	
1 DURATION OF EXCESS EMISSIONS (HRS)	1 DURATION OF CEM D		1 DURATION OF BYPASS	
a) Startup/Shutdown 0.00	SOURCE OPERATION	• ,	a) Process Problems	0.00
b) Control equipment 0.00	a) Monitor malfunction	0.00	b) Other known causes	0.00
c) Process problems 0.00	b) Non-monitor malfund		c) Unknown causes	0.00
d) Other known causes	c) QA calibration	1.00	2 TOTAL DUDATION (UDC)	0.00
e) Unknown causes	d) Other known causes e) Unknown causes	0.00	2 TOTAL DURATION (HRS) 3 PERCENT OF TOTAL	0.00
g) Fuel problems 0.00	C) Children Causes	0.00	OPERATION HOURS	0.00%
2 TOTAL DURATION (HRS) 0.00	2 TOTAL DURATION (H	RS) 11.00	OF EIGHTION TIOONS	0.0076
3 PERCENT OF TOTAL	3 PERCENT OF TOTAL	11.00		
EXCESS EMISSIONS 0.00%	CEM DOWNTIME	0.55%		
FOR OPACITY, RECORD ALL TIMES IN MINU	TES. FOR GASES, RECORD AL	L TIMES IN HOURS.		
	ons / (Total Operating Time - CEN	Downtime)		
% Total CEM Downtime = CEM Downtime / Total Operating	g Time			
NOTES: Actual monitored values are noted in this section.				
During excess emission events, a value equal to 1.5 times the high cal		to replace any analyzer re-	adings over that value since measured data	points are not
verifiable or accurate when at least 50% greater than the high calibration	on gas concentration.			
			10.00	
If no exceedances: I certify that the required analyses were made, that I am fan there were no exceedances during the reporting period. I certify that I am famili knowledge the information is valid.			у	
•	renort	DATE:		
SUBMITTED BY: See certification page at front of	rehorr	DATE:	_	

REPORTING QUARTER:		Fourth, 2018	AQDFILE# #0203 (AI ID 447)
EMISSION UNIT(S):		#3 SRU/SCOT unit	
POLLUTANT MONITORED:		S02 (ppm)	
DATE/TIME a) Startup/Shutdown 10/1/2018 1/1/2019	TOTAL DURATION (HRS)	MAX. CONC. (ppm, 12-hr average) Actual Recalc No excess emissions.	CAUSE/CORRECTIVE ACTION
Total	0.00	_	
b) Control equipment 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.	
c) Process problems 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
d) Other known causes 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.	
e) Unknown causes 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.	
f) Scot blowing 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.	
g) Fuel problems 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.	

EMISSION UNIT(S): 902 POLLUTANT MONITORED: 502 ATECTIME (PIRS) VOLUSE/CORRECTIVE ACTION a) Monitor malfunction Total 0.00 b) Non-monitor malfunction Total 0.00 c) QA calibration 10/25/2018 13.00 10/25/20	REPORTING QUARTER:		Fourth, 2018 AQD FILE# #0203 (AI ID 447)
TOTAL DURATION (HRS) CAUSE/CORRECTIVE ACTION a) Monitor malfunction Total 0,00 b) Non-monitor malfunction Total 0,00 c) QA calibration 10/25/2018 13:00 10/25/2018 14:00 1.00 Total 1,00 d) Other known causes 10/22/2018 11:00 1.00 11/5/2018 11:00 11	EMISSION UNIT(S):		#3 SRU/SCOT unit
DURATION CAUSE/CORRECTIVE ACTION	POLLUTANT MONITORED:		802
a) Monitor malfunction Total 0.00 b) Non-monitor malfunction Total 0.00 c) QA calibration 10/25/2018 13:00 1.00 2.00 4.00 4.00 4.00 4.00 4.00 4.00 4			
Total 0.00 b) Non-monitor malfunction Total 0.00 C) QA calibration 10/25/2018 13:00 10/25/2018 14:00 1.00 Quarterly audit 1.00 d) Other known causes 10/22/2018 10:00 1.00 Low flow to analyzer; cleaned 11/5/2018 16:00 11/5/2018 10:00 1.00 Inspection of impinger and tubing. 11/12/2018 13:00 1.00 Inspection of impinger and tubing. 11/20/2018 13:00 1/1/20/2018 13:00 1/1/20/2018 13:00 1/1/20/2018 13:00 1/1/20/2018 13:00 1/1/20/2018 13:00 1/1/20/2018 13:00 1/1/20/2018 13:00 5.00 Preventive maintenance. 1/20/2018 13:00 5.00 Preventive maintenance. 1/20/2018 13:00 5.00 Preventive maintenance. 1/20/2018 13:00 5.00 Preventive maintenance.	DATE/TIME		CAUSE/CORRECTIVE ACTION
b) Non-monitor malfunction Total 0.00 c) QA calibration 10/25/2018 13:00 1.00 Quarterly audit Total 1.00 d) Other known causes 10/22/2018 10:00 10/22/2018 10:00 10/22/2018 10:00 11/5/2018 10:00 10/22/2018 10:00 10/22/2018 10:00 11/5/2018 10:00 10/22/2018 10/22/2018 10/2	a) Monitor malfunction		
b) Non-monitor malfunction Total 0.00 c) QA calibration 10/25/2018 13:00 1.00 Quarterly audit Total 1.00 d) Other known causes 10/22/2018 10:00 10/22/2018 10:00 10/22/2018 10:00 11/5/2018 10:00 10/22/2018 10:00 10/22/2018 10:00 11/5/2018 10:00 10/22/2018 10/22/2018 10/2	Total	0.00	-
C) QA calibration 10/25/2018 13:00 10/25/2018 14:00 10/25/2018 14:00 10/22/2018 10:00 10/22/2018 11:00 10/22/2018 11:00 11/5/2018 16:00 11/5/2018 17:00 11/5/2018 10:00 11/5/2018 10:00 11/5/2018 10:00 11/5/2018 10:00 11/5/2018 10:00 11/20/2018 1		0.00	
c) QA calibration 10/25/2018 13:00 10/25/2018 14:00 1.00 Quarterly audit 1,00 d) Other known causes 10/22/2018 11:00 1,02/2018 11:00 1,02/2018 11:00 1,02/2018 11:00 1,02/2018 11:00 1,02/2018 11:00 1,02/2018 11:00 1,02/2018 11:00 1,02/2018 11:00 1,02/2018 11:00 1,02/2018 11:00 1,02/2018 11:00 1,02/2018 11:00 1,02/2018 11:00 1,02/2018 12:00 1,02/2018 13:00 1,02/2018 13:00 1,02/2018 3:00 1,02/2018 3:00 1,02/2018 3:00 1,02/2018 3:00 1,02/2018 3:00 1,02/2018 3:00 1,02/2018 3:00 1,02/2018 3:00 1,00 1,00 Preventive maintenance. 1,00 1,00 1,00 1,00 1,00 1,00 1,00 1,0	b) Non-monitor malfunction		
10/25/2018 13:00 10/25/2018 14:00 10/25/2018 14:00 10/25/2018 10:00 10/22/2018 10:00 10/22/2018 11:00 10/22/2018 11:00 11/5/2018 17:00 11/5/2018 17:00 11/12/2018 11:00 11/12/2018 13:00 11/12/2018 13:00 11/20/2018 13:00 11/20/2018 33:00 11/20/2018 33:00 11/29/2018 33:00	Total -	0.00	
10/25/2018 14:00			
Total 1.00 d) Other known causes 10/22/2018 10:00 10/22/2018 11:00 11/5/2018 16:00 11/5/2018 17:00 11/12/2018 17:00 11/12/2018 12:00 11/12/2018 12:00 11/20/2018 13:00 11/20/2018 13:00 11/20/2018 30:00		4.00	Constant with
10/22/2018 10:00 10/22/2018 10:00 11/5/2018 16:00 11/5/2018 17:00 11/5/2018 17:00 11/12/2018 10:00 11/12/2018 10:00 11/12/2018 10:00 11/20/201			Quarteny audit
10/22/2018 11:00	d) Other known causes		
11/5/2018 16:00 11/5/2018 17:00 1.00 11/12/2018 11:00 11/12/2018 12:00 11/20/2018 13:00	10/22/2018 10:00		
11/5/2018 17:00 1.00 Inspection of impinger and tubing. 11/12/2018 12:00 1.00 Testing on analyzer. 11/20/2018 13:00 2.00 Preventive maintenance. 11/20/2018 38:00 5.00 Preventive maintenance. Total 10.00 Inspection of impinger and tubing. Testing on analyzer. Preventive maintenance.		1.00	Low flow to analyzer; cleaned
11/12/2018 12:00	11/5/2018 17:00	1.00	Inspection of impinger and tubing.
11/20/2018 13:00 11/20/2018 3:00 2.00 Preventive maintenance. 11/29/2018 3:00 11/29/2018 8:00 5.00 Preventive maintenance. Total			Total control
11/20/2018 15:00 2.00 Preventive maintenance. 11/29/2018 3:00 11/29/2018 8:00 5.00 Preventive maintenance. Total 10.00		1.00	resting on analyzer.
11/29/2018 8:00 5.00 Preventive maintenance. Total 10.00	11/20/2018 15:00	2.00	Preventive maintenance.
Total 10.00		- 40	
a) library Caucac			Preventive maintenance.
C) ONNIDAN GRAGO	e) Unknown causes		
Total 0.00			

CONTINUOUS EMISSION MONITOR SRU Bypass Information

REPORTING QUAR	TER:	_1	Fourth, 2018 AQD FILE # #0203 (AI ID 447)
EMISSION UNIT(S):			#3 SRU/SCOT unit
POLLUTANT MONIT	FORED:	_1	Bypass (Acid gas)
DATE/TIME	DUR	OTAL ATION IRS) (CAUSE/CORRECTIVE ACTION
a) Process problems Total	10/1/2018 1/1/2019	0.00	No bypasses that resulted in excess emissions.
b) Other known caus	10/1/2018 1/1/2019	1	No bypasses that resulted in excess emissions.
b) Unknown causes Total	10/1/2018 1/1/2019	0.00	No bypasses that resulted in excess emissions.

AQD FILE #: #0203 (AI ID 447)

POLLUTANT (circle one):	SO2 Other:	NOx	со	CO2 O2	TRS	H2S	HCL	Opacity	
				MONITOR	२				
REPORTING QUARTER:	Fourth, 201	.8		MODEL:	Advance	Optima, <u>I</u>	imas 11,	NDUV	
FACILITY:				MFR:	ABB				
St. Paul Park R	efining Co.	LLC				D 41/5D40			
EMICOLON OF ID IDOT ITEM				EMISSIO		D AVERAGE			
EMISSION SUBJECT ITEM:	EQUI33					SO2/hr -			
EMISSION UNIT(S):	#3 SRU/SCOT	unit			15.0 lb	S02/hr -	3 hour ro	olling averag	łe
Limbolott Citi (C).	Unit Start		2004	EMISSIO	N BASIS:	MN Rule 5	7009 0020	- AAQS/SIP	
	OHITE BEALES	<u>.p ==/==0/</u>	2001		1 15,10,0.	PHV RUIC	7003.0020	1220/011	
ASSOCIATED ITEMS:	TREA4, COMO	7, EQUI163	, EQUI29	6, EQUI210,	EQUI211,	STRU6			
					PERATING SION UNIT:		2008		
A. EMISSION DATA SUMMA	RY			B CEM E	ERFORMA	NCE SUMM	ARY		
74 Zimoolott Press of the second		1 hr	3-hr		LICI OIGHA	HOL OUIIII			
1 DURATION OF EXC	ESS EMISSION		•	1	DURATIO	N OF CEM [OOWNTIME	DURING	
a) Startup/Shutdown		0.00	0.00			OPERATION			
b) Control equipmen		0.00	0.00			malfunction	. (/	0.00	
c) Process problems		0.00	0.00			nitor malfun	ction	0.00	
d) Other known caus	0.00	0.00		c) QA catib	oration	,	1.00		
e) Unknown causes	0.00	0.00	· [•	nown causes	s	10.00		
f) Soot blowing		0.00	0.00		e) Unknow			0.00	
g) Fuel problems		0.00	0.00						
2 TOTAL DURATION	(HRS)	0.00	0.00	' 2	TOTAL DU	JRATION (H	RS)	11.00	
3 PERCENT OF TOTA	 AL			• 1		OF TOTAL			
EXCESS EMISSION	S	0.00%	0.00%		CEM DOW	VNTIME		0.55%	
	FOR OPACIT	r, RECORD A	LL TIMES	IN MINUTES.	OR GASE	S, RECORD	ALL TIMES	S IN HOURS.	
% Total Excess Emissions =		Total Duration	- f C	· Fii 1/7	-4-1 04	Ti	EM Daniel		
% Total Excess Emissions -		Total Duration	I OI EXCES	s Emissions / (1	otal Operati	ing time - C	EN DOWNER	ne)	
% Total CEM Downtime =		CEM Downtin	ne / Total (Operating Time					
NOTE:									
#3 SRU/SCOT 1b	SO2/hr CEM d	owntime is	the sam	e as report	ed for #	3 SRU/SCC	T SO2 p	pm.	
				<u> </u>					
If no exceedances: I certify the during the reporting period. It									
SUBMITTED BY:	-			ont of repor			DATE:		

REPORTING QUARTER:		Fourth, 2018		AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		#3 SRU/SCOT unit		
POLLUTANT MONITORED:		SO2 (lbs/hr) - 45	lb/hr, 1-hr average	
	TOTAL			
	DURATION	MAX. CONCEN.		
DATE/TIME	(HRS)	(lbs/hr, 1-hr average)	CAUSE/CORRECTIVE AC	CTION
a) Startup/Shutdown				
10/1/2018				
1/1/2019		No excess emissions.		
Total _	0.00	-		
b) Control equipment				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00	-		
a) Decesso problems				
c) Process problems 10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00	140 0,0033 01113310113.		
. 5.6.	0.00			
d) Other known causes				
10/1/2018				
1/1/2019 _		No excess emissions.		
Total	0.00			
e) Unknown causes				
10/1/2018				
1/1/2019 _		No excess emissions.		
Total	0.00	-		
f) Soot blowing				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00	-		
g) Fuel problems				
10/1/2018				
1/1/2019		No excess emissions.		
Total	0.00	-		

REPORTING QUARTER:		Fourth, 2018	AQD FILE# #0203 (AI ID 447)
EMISSION UNIT(S):		#3 SRU/SCOT unit	
POLLUTANT MONITORED:		SO2 (lbs/hr) - 15	1b/hr, 3-hr average
	TOTAL		
	DURATION	MAX. CONCEN.	
DATE/TIME	(HRS)	(lbs/hr, 3-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		
 b) Control equipment 			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	-	
. =			
c) Process problems			
10/1/2018		Alexandra and alexandra	
1/1/2019	2.00	No excess emissions.	
Total	0.00		
d) Other known causes			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	-	
e) Unknown causes			
10/1/2018			
1/1/2019_		No excess emissions.	
Total	0.00		
f) Soot blowing			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00	_,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
g) Fuel problems			
10/1/2018			
1/1/2019		No excess emissions.	
Total	0.00		

REPORTING QUARTER:		Fourth, 2018 AQDFILE# #0203 (AI ID 447)	
EMISSION UNIT(S):		#3 SRU/SCOT unit	
POLLUTANT MONITORED:		SO2 (lbs/hr)	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	_
	NOTE: SO2 lb/hr o	downtime same as reported for #3 SRU/SCOT SO2 ppm	
a) Monitor malfunction			
Total	0.00	See #3 SCOT ppm page for details	
b) Non-monitor malfunction			
Total	0.00	See #3 SCOT ppm page for details	
c) QA calibration			
Total	1.00	See #3 SCOT ppm page for details	
d) Other known causes			
Total	10.00	See #3 SCOT ppm page for details	
e) Unknown causes			
Total	0.00	See #3 SCOT ppm page for details	

AQD FILE #: #0203 (AI ID 447)

POLLUTANT (circle one):	SO2	NOx	CO	CO2	02	TRS	H2S	HCL	Opacity
	Other:	Temperature	<u> </u>						
					MONITOR				
REPORTING QUARTER:	Fourth, 20	018			MODEL:		NA		
FACILITY:					MFR:		NA		
St. Paul Park I	Refining Co	. LLC							
EMISSION SUBJECT ITEM:	EU 088				EMISSION	LIMIT AN	ID AVERAGI	E TIME:	
	Unit Start	up - 10/20/2	2008		>	550 Deg	F - 3 ho	ur rollir	ng average
EMISSION UNIT(S):	NP VEPR Ph	ase 1			EMISSION	BASIS:	Title V	Permit	
, ,							MN R. 70		,
ASSOCIATED ITEMS:	TREA10, TR	EA7, STRU25						-	
					TOTAL OP	ERATING	HOURS		
					OF EMISSI	ON UNIT	: _	0	-
A. EMISSION DATA SUMMA	ARY				B. CEM PE	RFORMA	NCE SUMM	IARY	
1 DURATION OF EXC		ONS (HRS)					OF CEM DO		URING
a) Startup/Shutdowi			0.00				PERATION ((HRS)	
b) Control equipmer			0.00		· ·		nalfunction		0.00
c) Process problems d) Other known cau			0.00		<i>'</i>		itor malfuncti	on	0.00
e) Unknown causes			0.00		·	QA calibra			0.00
f) Soot blowing			0.00			Unknown	own causes		0.00
g) Fuel problems		_	0.00		<i>e)</i>	OTKHOWIT	causes		0.00
2 TOTAL DURATION	(HDC)	_			2 TO	TAL DUE	ATION (UD	C/	0.00
3 PERCENT OF TOTAL	` '		0.00				RATION (HR: DF TOTAL	5)	0.00
EXCESS EMISSION			0.008			M DOWN			0.000
EVCE22 EMISSION	NO		0.00%			INI DOVVIN	N I IIVIE		0.00%
	FOR OPACIT	Y, RECORD AL	L TIMES	IN MI	NUTES. FO	R GASES	S, RECORD	ALL TIMES	IN HOURS.
% Total Excess Emissions =		Total Duration	of Evene	Emin	sions / (Tota	Onoroti	na Tima CE	- NA Dovertina	
		Total Duration			`	ii Operatii	ng Time - CE	INI DOWNUM	e)
% Total CEM Downtime =		CEM Downtime	e / Total C	Operat	ing Time				
NOTES:									
-				-					, , , , , , , , , , , , , , , , , , ,
If no exceedances: I certify to were no exceedances during knowledge the information is	the reporting p								
SUBMITTED BY:		ication page	e at fr	ont c	f report		_ !	DATE:	

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		NP VEPR Phase 1	
POLLUTANT MONITORED:		Temperature	
DATE/TIME	TOTAL DURATION (HRS)	MIN. TEMP. (°F, 3-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
b) Control equipment 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
c) Process problems 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
d) Other known causes 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
e) Unknown causes 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
f) Soot blowing 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
g) Fuel problems 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		NP VEPR Phase 1	
POLLUTANT MONITORED:		Temperature	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction	(,, 5)	S. OSE S. C.	
Total	0.00	-	
b) Non-monitor malfunction			
Total	0.00	-	
c) QA calibration			
Total	0.00	-	
d) Other known causes			
Total	0.00	-	
e) Unknown causes			
Total	0.00	-	

AQD FILE #: #0203 (AI ID 447)

POLLUTANT (circle one):	SO2	NOx	CO	CO2	O2	TRS	H2S	HCL	Opacity	
	Other:	Temperature)							
	`			•	MONITOR					
REPORTING QUARTER:	Fourth, 20	18			MODEL:		NA			
FACILITY:					MFR:		NA			
St. Paul Park F	Refining Co.	LLC								
EMISSION SUBJECT ITEM:	EU 089			_	EMISSION	LIMIT A	ND AVERAGI	E TIME:		
					>	550 Deg	JF - 3 ho	ur rollin	ng average	
EMISSION UNIT(S):	NP VEPR Pha	ase 2								
					EMISSION	BASIS:	Title V	Permit		
ASSOCIATED ITEMS:	TREA6, TREA	A8, STRU29					MN R. 70	07.0800		
					TOTAL OP	ERATING	3 HOURS			
					OF EMISSI	ON UNIT	Γ;	0		
							-		-	
A. EMISSION DATA SUMMA	ARY				B. CEM PE	RFORM	ANCE SUMM	IARY		
4 DUDATION OF EV	NEO0 EMIODIO	NO (UDO)			4.50		05 054 00			
1 DURATION OF EXC		NS (HKS)					OF CEM DO		DURING	
a) Startup/Shutdowr b) Control equipmer		-	0.00		1		PERATION ((HK9)	0.00	
c) Process problems		-	0.00		1		nalfunction itor malfuncti	on	0.00	j
d) Other known caus		-	0.00		1 ′	QA calibr		OH	0.00	
e) Unknown causes	303	-	0.00	•	1 '		own causes		0.00	i
f) Soot blowing		-	0.00	•	1 '	Unknowr			0.00	
g) Fuel problems		_	0.00	•	",	OTIMITOWN	1 000303		0.00	1
2 TOTAL DURATION	(HRS)	-	0.00	•	2 TC	TAL DIT	RATION (HR	6/	0.00	
3 PERCENT OF TOTAL	` '	_	0.00				OF TOTAL	0)		
EXCESS EMISSION			0.00%		1	M DOW			0.00%	
270200 EMIOUTOT		_	0.008			-111 00111	I VI IIVIL		0.00%	
	FOR OPACIT	Y, RECORD A	ALL TIMES	IN MI	NUTES. FC	R GASE	S, RECORD	ALL TIMES	IN HOURS.	
% Total Excess Emissions =		Total Duration	n of Exces	s Emis	sions / (Tota	al Operati	ing Time - CE	M Downtim	e)	
% Total CEM Downtime =		CEM Downtin	ne / Total (Operat	ing Time					
NOTES:										
	-		-							
If no exceedances: I certify the										there
were no exceedances during knowledge the information is		eriod. I certify	that I am i	ramılıaı	r with the inf	ormation	in this report	and that to	the best of my	
SUBMITTED BY:	See certif:	ication pag	ge at fr	ont o	f report			DATE:		

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		NP VEPR Phase 2	
POLLUTANT MONITORED:		Temperature	
DATE/TIME	TOTAL DURATION (HRS)	MIN. TEMP. (°F, 3-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown 10/1/2018 1/1/2019 Total	0.00	No excess emissions.	
b) Control equipment 10/1/2018 1/1/2019 _ Total	0.00	_No excess emissions.	
c) Process problems 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
d) Other known causes 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
e) Unknown causes 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
f) Soot blowing 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	
g) Fuel problems 10/1/2018 1/1/2019 Total	0.00	_No excess emissions.	

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		NP VEPR Phase 2	
POLLUTANT MONITORED:		Temperature	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction	(11110)	,	
		_	
Total	0.00		
b) Non-monitor malfunction			
Total	0.00	-	
c) QA calibration			
Total	0.00	-	
d) Other known causes			
Total	0.00	-	
e) Unknown causes			
Total	0.00	-	

AQD FILE #: #0203 (AI ID 447)

POLLUTANT (circle one):	SO2 Other:	NOx	со	CO2	O2 MONITO	TRS	H2S	HCL	Opacity	
REPORTING QUARTER:	Fourth, 20)18		•	MODEL:	N.	Syscon/Ura Magnos 206			
FACILITY: St. Paul Park Ref	fining Co.	LLC			MFR: <u>*</u>	ABB				
EMISSION SUBJECT ITEM:	EQUI42						AND AVERAG		rage	
EMISSION UNIT(S):	Boiler 7 Boiler 16-	B-7			EMISSIO	N BASI	S:	NSPS Db		
ASSOCIATED ITEMS:	COMG27 (BC	oilers 7&8), STRU44	EQUI0212	2,	OPERAT	ING HO	OURS OF EMISS	SION UNIT:	2143	
A. EMISSION DATA SUMMAR	Y				B. CEM F	Perform	ance Summary			
DURATION OF EXCES	SS EMISSION	S (HRS)			1 [URATI	ON OF CEM DO	OWNTIME DU	JRING	
1 a) Startup/Shutdown		(30 Day) 0.00			5	SOURC	E OPERATION	(HRS)		
b) Control equipment	•	0.00			l a) Monito	or malfunction		0.00	
c) Process problems		0.00			b) Non-n	nonitor malfunct	ion	0.00	
d) Other known causes	3	0.00			0) QA ca	libration		1.00	
e) Unknown causes		0.00			0	l) Other	known causes		49.00	
f) Soot blowing		0.00			€	e) Unkno	own causes		0.00	
g) Fuel problems		0.00								
2 TOTAL DURATION (H	RS)	0.00			2 7	OTAL [DURATION (HR	(S)	50.00	
3 PERCENT OF TOTAL					1		NT OF TOTAL			
EXCESS EMISSIONS		0.00%				CEM DC	OWNTIME		2.33%	
	FOR OPACIT	Y, RECORD A	LL TIMES IN	MINU	JTES. FOF	R GASE	S, RECORD AL	L TIMES IN H	HOURS.	
% Total Excess Emissions =		Total Duration	of Excess E	missio	ns / (Total (Operatin	ng Time - CEM [Downtime)		
% Total CEM Downtime = NOTES:		CEM Downtim	e / Total Ope	erating	Time					
 										· · · · · · · · · · · · · · · · · · ·
If no exceedances: I certify that exceedances during the reportir valid. SUBMITTED BY:	ng period. I cer	•	miliar with th	e infor	mation in th			•	-	

EXCESS EMISSION REPORT

REPORTING QUARTER:		Fourth, 2018	Manufacture and	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		Boiler 16-B-7		
POLLUTANT MONITORED:		NOx (lbs/mmbtu)		
	TOTAL DURATION			
DATE/TIME	(HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACT	ION
a) Startup/Shutdown 10/1/2018 1/1/2019		No excess emissions.		
Total	0.00	140 020033 01113310113.		
b) Control equipment 10/1/2018 1/1/2019		No excess emissions.		
Total	0.00	•		
c) Process problems 10/1/2018 1/1/2019 Total	0.00	No excess emissions.		
d) Other known causes 10/1/2018 1/1/2019 Total	0.00	No excess emissions.		
e) Unknown causes 10/1/2018 1/1/2019 _		No excess emissions.		
Total	0.00			
f) Soot blowing 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.		
g) Fuel problems 10/1/2018 1/1/2019 _ Total	0.00	No excess emissions.		

CONTINUOUS EMISSION MONITOR DOWNTIME REPORT

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: _	#0203 (AI <u>ID</u>	447)
EMISSION UNIT(S):		16-B-7			
POLLUTANT MONITORED:		NOx			
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION			
a) Monitor malfunction					
Total	0.00	-			
b) Non-monitor malfunction					
Total	0.00	-			
c) QA calibration 10/22/18 14:00 10/22/18 15:00 Total	1.00 1.00	_Quarterly Audit			
d) Other known causes					
10/3/2018 14:00 10/3/2018 16:00 10/4/2018 10:00	2.00	Communications error			
10/4/2018 13:00 10/5/2018 9:00	3.00	Communications error			
10/5/2018 14:00 10/5/2018 15:00	5.00	Communications error			
10/6/2018 23:00 10/8/2018 9:00	32.00	Communications error			
10/8/2018 12:00 10/8/2018 13:00	3.00	Electrical cutover, analyzer powered down			
10/8/2018 15:00 11/7/2018 13:00	2.00	Communications error			
11/7/2018 15:00 Total	49.00	_Preventative maintenance			
e) Unknown causes					
Total	0.00	-			

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one):	SO2	NOx	CO	CO2	02	TRS	H2S	HCL	Opacity
	Other:	FLOW			MONITO	D			
REPORTING QUARTER:	Fourth, 201	3			MONITO MODEL:		Fuel Gas Fl	ow Rate/F0	G H2S CEM
FACILITY:					MFR:				
St. Paul Park Ref	ining Co. LLC				_				
					EMISSIC	NI I IMIT	AND AVERAGE	= TIME:	
EMISSION SUBJECT ITEM:	EQUI42								rolling average
EMISSION UNIT(S):	Boiler 7				-				
	Boiler 16-B	- 7			EMISSIC	N BASIS	-	SIP for SC	2 NAAQS
ASSOCIATED ITEMS:	COMG7, COMG	27, EQUI163	, STRU44						
					OPERAT	ING HOL	RS OF EMISS	ION UNIT:	2143
A. EMISSION DATA SUMMAR	Y				B. CEM	Performa	ınce Summary	1	
DURATION OF EXCE	SS EMISSIONS (F	IRS)			1 1	DURATIO	N OF CEM DO	WNTIME D	JRING
1			lb/mmbtu			SOURCE	OPERATION (HRS)	
a) Startup/Shutdown		_	0.00		1				Fuel Gas
b) Control equipment		_	0.00		*	a) Monito	r malfunction		0.00
c) Process problems		_	0.00		'	b) Non-m	onitor malfuncti	on	0.00
d) Other known causes	S	_	0.00			c) QA cali	ibration		0.00
e) Unknown causes		_	0.00			d) Other k	nown causes		34.00
f) Soot blowing			0.00		(e) Unknov	wn causes		0.00
g) Fuel problems			0.00						
2 TOTAL DURATION (H	RS)		0.00		2 -	TOTAL D	URATION (HRS	3)	34.00
3 PERCENT OF TOTAL		_			3 1	PERCEN	T OF TOTAL		
EXCESS EMISSIONS		_	0.00%		(CEM DO	WNTIME		1.59%
	FOR OPACITY	, RECORD AL	L TIMES IN M	MINUTES. FOR	GASES, R	ECORD A	ALL TIMES IN	HOURS.	
% Total Excess Emissions =		otal Duration	of Excess Emi	ssions / (Total (Operating T	ime - CEl	M Downtime)		
% Total CEM Downtim	e = (EM Downtime	e / Total Opera	ating Time					
NOTES:									
									
			_						
If no exceedances: I certify that									
during the reporting period. I ce	•			•	at to the be	st of my l	-		valid.
SUBMITTED BY:	See certific	ation page	at front o	of report			_	DATE:	

EXCESS EMISSION REPORT

REPORTING QUARTER:		Fourth, 2018		AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		EQUI44		
POLLUTANT MONITORED:		SO2 1b/mmbtu		
	TOTAL DURATION			
DATE/TIME	(HRS)	MAX. CONCENTRATION CAU	SE/CORRECTIVE ACTION	
a) Startup/Shutdown 10/1/2018 1/1/2019		No excess emissions.		
Total	0.00	THO CAGGS CHIIGSIONS.		
b) Control equipment 10/1/2018 1/1/2019		No excess emissions.		
Total	0.00			
c) Process problems 10/1/2018 1/1/2019 Total	0.00	No excess emissions.		
d) Other known causes 10/1/2018 1/1/2019		No excess emissions.		
Total	0.00			
e) Unknown causes 10/1/2018 1/1/2019		No excess emissions.		
Total	0.00	NO excess emissions.		
f) Soot blowing 10/1/2018 1/1/2019 Total	0.00	No excess emissions.		
iolai	0.00			
g) Fuel problems 10/1/2018 1/1/2019		No excess emissions.		
Total	0.00			

CONTINUOUS EMISSION MONITOR DOWNTIME REPORT

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)	
EMISSION UNIT(S):		Heater 8-B-1 (EQUI44)		
POLLUTANT MONITORED:		Fuel Gas Flow Rate		
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION		
a) Monitor malfunction	(rii.co)	S. IOSE DOTALES IN E. NOTION		
Total	0.00	-		
b) Non-monitor malfunction				
Total	0.00	-		
c) QA calibration				
Total	0.00	-		
d) Other known causes				
Total	0.00	-		
e) Unknown causes				
Total	0.00	-		

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one):	SO2 Other:	NOx	<u></u>	CO2	<u>O2</u>	TRS	H2S HCL	, ,	
REPORTING QUARTER:	Fourth 30	10			MONITOR MODEL:		Syscon/Uras 26 -	CO	
REPORTING QUARTER.	Fourth, 20	18			WIODEL:		Magnos 206 - O ₂		
FACILITY: St. Paul Park Ref	ining Co. L	LC			MFR: A	3B			
					EMISSION	≀ I IMIT A	ND AVERAGE TIME:		
EMISSION SUBJECT ITEM:	COMG27						Per Year - 12 mont	h rolling sum	
2,00,01,0020201112	00,						lers 7 & 8 combine		
EMISSION UNIT(S):	COMG27					*			
, ,	Boilers 16	-B-7 and 1	L6-B-8		EMISSION	BASIS:	TV Air Permit - I	imit to avoid	NSR
							40 CFR 52.21, Mir		
ASSOCIATED ITEMS:	EQUI42, EQ	UI43, EQUI	1213,						
	EQUI214, E	QUI216, EC	QUI217, STRU44	, STRU45				Boiler 7	Boiler 8
					OPERATIN	NG HOUI	RS OF EMISSION UNIT:	2143	2195
A. EMISSION DATA SUMMARY	,				B. CEM P	erformar	ice Summary		
DURATION OF EXCES		(HRS)					OF CEM DOWNTIME	DURING	
1		(/	Ton/Year				OPERATION (HRS)		
a) Startup/Shutdown			0.00		_			Boiler 7	Boiler 8
b) Control equipment			0.00		a)	Monitor	malfunction	0.00	0.00
c) Process problems			0.00		b)	Non-mo	nitor malfunction	0.00	0.00
d) Other known causes			0.00		c)	QA calib	oration	1.00	1.00
e) Unknown causes			0.00		d)	Other kr	nown causes	49.00	49.00
f) Soot blowing			0.00		e)	Unknow	n causes	0.00	0.00
g) Fuel problems			0.00					<u> </u>	
2 TOTAL DURATION (HI	RS)		0.00		2 T	OTAL DU	JRATION (HRS)	50.00	50.00
3 PERCENT OF TOTAL					3 PI	ERCENT	OF TOTAL		
EXCESS EMISSIONS			0.00%		С	EM DOW	NTIME	2.33%	2.28%
	FOR OPACIT	Y, RECORD	ALL TIMES IN MIN	NUTES. FOR (GASES, REC	CORD AL	L TIMES IN HOURS.		
% Total Excess Emissions =		Total Duratio	on of Excess Emiss	sions / (Total O	perating Tim	ne - CEM	Downtime)		
% Total CEM Downtime =		CEM Downti	me / Total Operati	ing Time					
NOTES: CEMS downtime for	the GP 032			_	ed if ind	lividua	lly or for both		
CEMS for Boiler 7									
combined CO limit									
If no exceedances: I certify that the reporting period. I certify that									dances during
SUBMITTED BY:	See certif	ication pa	age at front o	of report			DATE:		

CONTINUOUS EMISSION MONITOR EXCESS EMISSION REPORT

REPORTING QUARTER:		Fourth, 2018	· · · · · · · · · · · · · · · · · · ·	AQD FILE #: #0203 (AI ID 447)		
EMISSION UNIT(S):		GP 032 - 16-B-7 and	16-B-8			
POLLUTANT MONITORED:		CO Ton/Year				
	TOTAL					
	DURATION					
DATE/TIME	(HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION			
a) Startup/Shutdown						
10/1/2018						
1/1/2019		No excess emissions.				
Total	0.00					
b) Control equipment						
10/1/2018						
1/1/2019_		_No excess emissions.				
Total	0.00					
a) Dragge problems						
c) Process problems 10/1/2018						
1/1/2019		No excess emissions.				
Total	0.00	_140 excess ellissions.				
Total	0.00					
d) Other known causes						
10/1/2018						
1/1/2019		No excess emissions.				
Total	0.00	_				
e) Unknown causes						
10/1/2018						
1/1/2019_	0.00	No excess emissions.				
Total	0.00					
f) Soot blowing						
10/1/2018						
1/1/2019		No excess emissions.				
Total	0.00					
g) Fuel problems						
10/1/2018		No succession				
1/1/2019_	0.00	No excess emissions.				
Total	0.00					

CONTINUOUS EMISSION MONITOR DOWNTIME REPORT

REPORTING QUARTER:		Fourth, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		16-B-7	
POLLUTANT MONITORED:		CO	
	TOTAL		
	DURATION		
DATE/TIME	(HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
		_	
Total	0.00		
b) Non-monitor malfunction			
Total	0.00	-	
c) QA calibration			
10/22/18 14:0		Out to the Austra	
10/22/18 15:0 Total	1.00	_Quarterly Audit	
d) Other known causes	20		
10/3/2018 14:0 10/3/2018 16:0		Communications error	
10/4/2018 10:0		Communications end	
10/4/2018 13:0		Communications error	
10/5/2018 9:0			
10/5/2018 14:0		Communications error	
10/5/2018 15:0			
10/6/2018 23:0		Communications error	
10/8/2018 9:0			
10/8/2018 12:0		Electrical cutover, analyzer powered down	
10/8/2018 13:0		Onindiana	
10/8/2018 15:0 11/7/2018 13:0		Communications error	
11/7/2018 15:0		Preventative maintenance	
Total	49.00	Trovonadro mantenanos	
e) Unknown causes			

Total

0.00

CONTINUOUS EMISSION MONITOR DOWNTIME REPORT

REPORTING QUARTER:		Fourth, 2018	AQD FILE # #0203 (AI ID 447)
EMISSION UNIT(S):		16-B-8	
POLLUTANT MONITORED:		со	
	TOTAL		
DATE/TIME	DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total	0.00		
b) Non-monitor malfunction			
Total	0.00		
c) QA calibration			
10/22/18 14:00		Overdenky Avada	
10/22/18 15:00 Total	1.00	_Quarterly Audit	
rotar	,		
d) Other known causes			
10/3/2018 14:00		0	
10/3/2018 16:00 10/4/2018 10:00	2.00	Communications error	
10/4/2018 13:00	3.00	Communications error	
10/5/2018 9:00	0.00	Ostimicalionio orior	
10/5/2018 14:00	5.00	Communications error	
10/5/2018 15:00			
10/6/2018 23:00	32.00	Communications error	
10/8/2018 9:00 10/8/2018 12:00		Electrical outquer, applyment neuronal down	
10/8/2018 13:00	3.00	Electrical cutover, analyzer powered down	
10/8/2018 15:00	2.00	Communications error	
11/7/2018 13:00			
11/7/2018 15:00		Preventative maintenance	
Total	49.00		
e) Unknown causes			
Total	0.00	-	

ME REPORT

REPORTING QUARTER:			
EMISSION UNIT(S):		Fourth, 2018	AQD FILE # #0203 (AI ID 447)
POLLUTANT MONITORED:		Temporary Flare (During Turnaround)	
DATE/TIME a) Pilot malfunction	TOTAL DURATION	Flame Presence (Non-Pollutant)	
10/1/2018 1/1/2019		CAUSE/CORRECTIVE ACTION	
1/1/2019 Total			
b) Other known causes 10/1/2018 1/1/2019	0.00	-	
Total			
c) Unknown causes 10/1/2018 1/1/2019	0.00	-	
Total			
	0.00	-	

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one):	SO2	NOx	CO CO2 O2	TRS	H2S	HCL Opacity	
Other:	This report	t address	es Flare H2S emiss	sions.			
REPORTING QUARTER:	Fourth, 20	18	MONITO				
FACILITY:			MODEL MFR:	8610C		· · · · · · · · · · · · · · · · · · ·	
St. Paul Park Refini	ina ca IIC		WIFK:	SRI Instrum	nents		
St. Faul Park Regini	ing co. inc		FMISSIG	ON LIMIT AND AV	/FRAGE TIME	:	
EMISSION SUBJECT ITEM:	Temporary I	Flare	2	162 ppm (3-			
							
EMISSION UNIT(S):			EMISSI	ON BASIS:			
Temporary Flare Stac	ck			40 CFR 63	NESHAP S	ubpart Ja	
ASSOCIATED ITEMS:	FUGI73				TOTAL OR	EDATING HOURS	
					OF EMISSI	ERATING HOURS	122
					OF EMISSI		113
A. EMISSION DATA SUMMARY			B. CEM PERFORMAN	CE SUMMARY			
1 DURATION OF EXCESS I	EMISSIONS		1 DURATION OF		 E		
EMISSIONS (HRS)	H2S		DURING SOUR	CE OPERATION	(HRS)		
a) Startup/Shutdown	0.00		a) Monitor malfu	unction	0.00		
b) Control equipment	0,00		b) Non-monitor	malfunction	0.00		
c) Process problems	0.00		c) QA calibratio	n	0.00		
d) Other known causes	0.00		d) Other known		18.00		
e) Unknown causes	2.00		e) Unknown cau	uses	0.00	•	
f) Soot blowing	0.00		2 TOTAL DUDAT	ION (UDC)	70.00		
g) Fuel problems	0.00		2 TOTAL DURAT 3 PERCENT OF		18.00	-	
2 TOTAL DURATION (HRS) 3 PERCENT OF TOTAL	2.00		CEM DOWNTIN		15.93%		
EXCESS EMISSIONS	1.77%		CENTROVALIT	VIC.	15.93%	†	
EXOLOG ENTIODIONO			i				
	FOR OPACIT	Y, RECORE	ALL TIMES IN MINUT	ES. FOR GASES	, RECORD AL	L TIMES IN HOURS.	
% Total Excess Emissions =		Total Durat	ion of SARA Reportable	Emissions / (Total	al Operating T	ime - CEM Downtime)	
			time / Total Operating T	,	-11-1-1-1-1-1	,	
% Total CEM Downtime =		CEN DOWN	nime / Total Operating 1	ine			
NOTES:					. — —		
				-			
						best of my knowledge there w of my knowledge the informat	were no exceedances during the reporting
SUBMITTED BY:	•		age at front of re	•	to the Dest	DATE:	The same of the sa

CONTINUOUS EMISSION MONITOR EXCESS EMISSION REPORT

REPORTING QUARTER:	F	ourth, 2018	-	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		Temporary Flare Stac	ck	
POLLUTANT MONITORED:		H2S		
DATE/TIME	TOTAL DURATION (HRS)		CAUSE/CORRECTIVE ACTION	
a) Startup/Shutdown 10/1/2018 1/1/2019				
Total	0.00	-		
b) Control equipment 10/1/2018 1/1/2019				
Total	0.00	-		
c) Process problems 10/1/2018 1/1/2019				
Total	0.00	-		
d) Other known causes 10/1/2018 1/1/2019 _ Total	0.00	-		
	0.00			
e) Unknown causes 10/4/2018 16:00 10/4/2018 18:00 10/5/2018 13:00 10/5/2018 23:00 Total	2 10 2.00		nt description in the report narrative.	
f) Soot blowing 10/1/2018 1/1/2019 _ Total	0.00	_		
g) Fuel problems				
10/1/2018 1/1/2019 _ Total	0.00	-		
rotal	0.00			

CONTINUOUS EMISSION MONITOR DOWNTIME REPORT

REPORTING QUARTER:	Ŧ	ourth, 2018	AQD FILE #:	#0203 (AI ID 447)
EMISSION UNIT(S):		Temporary Flare Stack		
POLLUTANT MONITORED:		H2S		
DATE/TIME	TOTAL DURATION (HRS)	ORRECTIVE ACTION		
c) QA calibration				
Total -	0.00	-		
d) Other known causes				
10/1/2018 0:00				
10/1/2018 8:00 10/2/2018 7:00	8.00	Analzyer downtime due to heavy steaming.		
10/2/2018 8:00 10/3/2018 4:00	1.00	Morning calibration and equipment preparation.		
10/3/2018 8:00 10/4/2018 7:00	4.00	Morning calibration and equipment preparation.		
10/4/2018 8:00 10/5/2018 7:00	1.00	Morning calibration and equipment preparation.		
10/5/2018 9:00 10/5/2018 14:00	2.00	Morning calibration and equipment preparation.		
10/5/2018 16:00	2.00	Calibration and equipment checks.		
Total -	18.00	-		
e) Unknown causes				
Total -	0.00	-		

Appendix A Quarterly CGA Results

Tag #:	16-AI-13	Calender Quarter:	FOURTH
Unit:	Boiler #7	Analyzer Span:	0 - 25%
Component:	OXYGEN (O ₂)	Serial Number:	3.347965.0
Date:	Monday, October 22, 2018	Technician:	BRYAN WINN
Start Time:	13:25	End Time:	14:46

Cylinder Gas Pressure Values

Cylinder Pressure (Start)		
Low Range	1500	
High Range	1410	

Cylinder Pressure (End)		
Low Range 1460		
High Range	1395	

Cylinder Gas Information			
	Low Calibration Gas	High Calibration Gas	
Cylinder Certification Number:	CC151353	SG9152543BAL	
Cylinder Certification Date:	8/9/2011	8/9/2011	
Cylinder Expiration Date:	8/9/2019	8/9/2019	
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One	
Concentration (ppm or % Ca):	5.038	10.110	

Calibration Gas Audit Results		
	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	4.28	8.59
Range of Allowance (±15%) High	5.79	11.63
Test Run #1	5.00	10.08
Test Run #2	4.99	10.08
Test Run #3	4.99	10.08
Average Result (Cm)	4.99	10.08
Accuracy (%)	-0.88	-0.28
Allowable Accuracy Error (%)	± 15%	± 15%
Test Results		

TEST WAS SUCCESSFUL!

Tag #:	16-AI-14	Calender Quarter:	FOURTH
Unit:	Boiler #7	Analyzer Span:	0 - 500 PPM
Component:	OXIDES OF NITROGEN (NO _X)	Serial Number:	3.347963.0
Date:	Monday, October 22, 2018	Technician:	BRYAN WINN
Start Time:	13:25	End Time:	14:46

Cylinder Gas Pressure Values

Cylinder Pressure (Start)		
Low Range	1360	
High Range	1550	

Cylinder Pressure (End)		
Low Range	1350	
High Range 1540		

Cylinder Gas Information			
	Low Calibration Gas	High Calibration Gas	
Cylinder Certification Number:	CC158095	CC403016	
Cylinder Certification Date:	8/3/2011	7/9/2013	
Cylinder Expiration Date:	8/3/2019	7/9/2021	
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One	
Concentration (ppm or % Ca):	129.2	277.7	

Calibration Gas Audit Results		
	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	109.82	236.05
Range of Allowance (±15%) High	148.58	319.36
Test Run #1	126.03	276.51
Test Run #2	126.33	276.70
Test Run #3	126.13	276.58
Average Result (Cm)	126.16	276.60
Accuracy (%)	-2.35	-0.40
Allowable Accuracy Error (%)	± 15%	± 15%
Test Results		

TEST WAS SUCCESSFUL!

Tag #:	16-Al-15	Calender Quarter:	FOURTH
Unit:	Boiler #7	Analyzer Span:	0 - 1000 PPM
Component:	CARBON MONOXIDE (CO)	Serial Number:	3.347963.0
Date:	Monday, October 22, 2018	Technician:	BRYAN WINN
Start Time:	13:25	End Time:	14:46

Cylinder Gas Pressure Values

Cylinder Pressure (Start)		
Low Range	1500	
High Range	1410	

Cylinder Pressure (End)		
Low Range 1460		
High Range 1395		

Cylinder Gas Information		
	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC151353	SG9152543BAL
Cylinder Certification Date:	8/9/2011	8/9/2011
Cylinder Expiration Date:	8/9/2019	8/9/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	259.00	573.90

Calibration Gas Audit Results		
	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	220.15	487.82
Range of Allowance (±15%) High	297.85	659.99
Test Run #1	260.76	571.35
Test Run #2	260.79	571.42
Test Run #3	260.14	571.07
Average Result (Cm)	260.56	571.28
Accuracy (%)	0.60	-0.46
Allowable Accuracy Error (%)	± 15%	± 15%
Test Results		

TEST WAS SUCCESSFUL!

Tag #:	16-AI-18	Calender Quarter:	FOURTH
Unit:	Boiler #8	Analyzer Span:	0 - 25%
Component:	OXYGEN (O ₂)	Serial Number:	3.347966.0
Date:	Monday, October 22, 2018	Technician:	BRYAN WINN
Start Time:	13:25	End Time:	14:46

Cylinder Gas Pressure Values

Cylinder Pressure (Start)		
Low Range	1500	
High Range	1410	

Cylinder Pressure (End)		
Low Range 1460		
High Range 1395		

Cylinder Gas Information		
	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC151353	SG9152543BAL
Cylinder Certification Date:	8/9/2011	8/9/2011
Cylinder Expiration Date:	8/9/2019	8/9/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	5.038	10.110

Calibration (Gas Audit Results)
	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	4.28	8.59
Range of Allowance (±15%) High	5.79	11.63
Test Run #1	4.96	10.05
Test Run #2	4.96	10.05
Test Run #3	4.96	10.04
Average Result (Cm)	4.96	10.05
Accuracy (%)	-1.64	-0.63
Allowable Accuracy Error (%)	± 15%	± 15%
Test Results		

TEST WAS SUCCESSFUL!

Tag #:	16-AI-19	Calender Quarter:	FOURTH
Unit:	Boiler #8	Analyzer Span:	0 - 500 PPM
Component:	OXIDES OF NITROGEN (NO _X)	Serial Number:	3.347964.0
Date:	Monday, October 22, 2018	Technician:	BRYAN WINN
Start Time:	13:25	End Time:	14:46

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1500
High Range	1410

Cylinder Pressure (End)	
Low Range	1460
High Range	1395

Cylinder Gas Information			
Low Calibration Gas High Calibration Gas			
Cylinder Certification Number:	CC158095	CC403016	
Cylinder Certification Date:	8/3/2011	7/9/2013	
Cylinder Expiration Date:	8/3/2019	7/9/2021	
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One	
Concentration (ppm or % Ca):	129.2	277.7	

Calibration Gas Audit Results		
	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	109.82	236.05
Range of Allowance (±15%) High	148.58	319.36
Test Run #1	126.02	277.03
Test Run #2	126.17	276.89
Test Run #3	126.41	277.24
Average Result (Cm)	126.20	277.05
Accuracy (%)	-2.32	-0.23
Allowable Accuracy Error (%)	± 15%	± 15%
Test Results		

TEST WAS SUCCESSFUL!

Tag #:	16-Al-20	Calender Quarter:	FOURTH
Unit:	Boiler #8	Analyzer Span:	0 - 1000 PPM
Component:	CARBON MONOXIDE (CO)	Serial Number:	3.347964.0
Date:	Monday, October 22, 2018	Technician:	BRYAN WINN
Start Time:	13:25	End Time:	14:46

Cylinder Gas Pressure Values

Cylinder Pressure (Start)		
Low Range	1500	
High Range	1410	

Cylinder Pressure (End)		
Low Range 1460		
High Range 1395		

Cylinder Gas Information			
	Low Calibration Gas	High Calibration Gas	
Cylinder Certification Number:	CC151353	SG9152543BAL	
Cylinder Certification Date:	8/9/2011	8/9/2011	
Cylinder Expiration Date:	8/9/2019	8/9/2019	
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One	
Concentration (ppm or % Ca):	259.00	573.90	

Calibration Gas Audit Results		
	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	220.15	487.82
Range of Allowance (±15%) High	297.85	659.99
Test Run #1	260.23	570.33
Test Run #2	260.15	570.24
Test Run #3	260.23	570.46
Average Result (Cm)	260.20	570.35
Accuracy (%)	0.46	-0.62
Allowable Accuracy Error (%)	± 15%	± 15%
Test Results		

TEST WAS SUCCESSFUL!

Tag #:	2-Al-103	Calender Quarter:	FOURTH
Unit:	#2 CRUDE	Analyzer Span:	0 - 10%
Component:	OXYGEN (O ₂)	Serial Number:	3.246580.2
Date:	Monday, October 22, 2018	Technician:	JACOB PAZUREK
Start Time:	13:45	End Time:	15:15

Cylinder Gas Pressure Values

Cylinder Pressure (Start)		
Low Range	1500	
High Range	1420	

Cylinder Pressure (End)		
Low Range 1495		
High Range	1410	

Cylinder Gas Information			
	Low Calibration Gas	High Calibration Gas	
Cylinder Certification Number:	SG9169569BAL	CC174008	
Cylinder Certification Date:	7/1/2013	2/17/2011	
Cylinder Expiration Date:	7/1/2021	2/17/2019	
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One	
Concentration (ppm or % Ca):	5.002	9.998	

Calibration Gas Audit Results				
Low Cal Gas High Cal Gas				
Range of Allowance (±15%) Low	4.25	8.50		
Range of Allowance (±15%) High	5.75	11.50		
Test Run #1	4.98	9.94		
Test Run #2	4.98	9.94		
Test Run #3	4.98	9.93		
Average Result (Cm)	4.98	9.93		
Accuracy (%)	-0.49	-0.64		
Allowable Accuracy Error (%)	± 15%	± 15%		
Test Results				

TEST WAS SUCCESSFUL!

Tag #:	2-AI-104	Calender Quarter:	FOURTH
	#2 CRUDE	Analyzer Span:	0 - 100 PPM
Component:	OXIDES OF NITROGEN (NO _X)	Serial Number:	3.246579.2
Date:	Monday, October 22, 2018	Technician:	JACOB PAZUREK
Start Time:	13:45	End Time:	15:15

Cylinder Gas Pressure Values

Cylinder Pressure (Start)		
Low Range	1560	
High Range	1800	

Cylinder Pressure (End)		
Low Range	1550	
High Range	1795	

Cylinder Gas Information			
Low Calibration Gas High Calibration Gas			
Cylinder Certification Number:	CC268503	CC18672	
Cylinder Certification Date:	8/15/2016	5/2/2014	
Cylinder Expiration Date:	8/15/2019	5/2/2022	
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One	
Concentration (ppm or % Ca):	25.0	57.3	

Calibration Gas Audit Results			
Low Cal Gas High Cal Gas			
Range of Allowance (±15%) Low	21.26	48.72	
Range of Allowance (±15%) High	28.76	65.92	
Test Run #1	24.62	55.76	
Test Run #2	24.48	55.66	
Test Run #3	24.66	55.65	
Average Result (Cm)	24.58	55.69	
Accuracy (%)	-1.70	-2.84	
Allowable Accuracy Error (%)	± 15%	± 15%	
Test Results			

TEST WAS SUCCESSFUL!

Tag #:	7-AI-205	Calender Quarter:	FOURTH
Unit:	VRU	Analyzer Span:	0 - 5%
Component:	PROPANE (C ₃ H ₈)	Serial Number:	ERFH-0934
Date:	Thursday, October 25, 2018	Technician:	BRYAN WINN
Start Time:	13:38	End Time:	13:59

Cylinder Gas Pressure Values

Cylinder Pressure (Start)		
Low Range	880	
High Range	600	

Cylinder Pressure (End)			
Low Range 700			
High Range 550			

Cylinder Gas Information		
	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	SG9160857BAL	LCCOSA10333
Cylinder Certification Date:	3/24/2014	6/22/2011
Cylinder Expiration Date:	3/24/2022	6/22/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	1.36	2.63

Calibration Gas Audit Results			
Low Cal Gas High Cal Gas			
Range of Allowance (±15%) Low	1.16	2.23	
Range of Allowance (±15%) High	1.57	3.02	
Test Run #1	1.31	2.53	
Test Run #2	1.31	2.50	
Test Run #3	1.31	2.50	
Average Result (Cm)	1.31	2.51	
Accuracy (%)	-3.96	-4.49	
Allowable Accuracy Error (%)	± 15%	± 15%	
Test Results			

TEST WAS SUCCESSFUL!

Tag #:	42-AI-4	Calender Quarter:	FOURTH
Unit:	#3 SRU	Analyzer Span:	0 - 25%
Component:	OXYGEN (O ₂)	Serial Number:	3.245244.3
Date:	Thursday, October 25, 2018	Technician:	JACOB PAZUREK
Start Time:	10:14	End Time:	11:37

Cylinder Gas Pressure Values

Cylinder Pressure (Start)		
Low Range	1830	
High Range	1600	

Cylinder Pressure (End)			
Low Range 1820			
High Range 1590			

Cylinder Gas Information		
	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC247661	CC335268
Cylinder Certification Date:	3/27/2014	2/11/2011
Cylinder Expiration Date:	3/27/2022	2/11/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	4.967	9.521

Calibration Gas Audit Results				
Low Cal Gas High Cal Gas				
Range of Allowance (±15%) Low	4.22	8.09		
Range of Allowance (±15%) High	5.71	10.95		
Test Run #1	4.97	9.52		
Test Run #2	4.97	9.51		
Test Run #3	4.96	9.51		
Average Result (Cm)	4.97	9.51		
Accuracy (%)	0.00	-0.07		
Allowable Accuracy Error (%)	± 15%	± 15%		
Test Results				

TEST WAS SUCCESSFUL!

Tag #:	42-AI-3	Calender Quarter:	FOURTH
Unit:	#3 SRU	Analyzer Span:	0 - 500 PPM
Component:	SULFUR DIOXIDE (SO ₂)	Serial Number:	3.245249.3
Date:	Thursday, October 25, 2018	Technician:	JACOB PAZUREK
Start Time:	13:14	End Time:	14:29

Cylinder Gas Pressure Values

Cylinder Pressure (Start)		
Low Range	1595	
High Range	1800	

Cylinder Pressure (End)		
Low Range 1590		
High Range 1790		

Cylinder Gas Information		
	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC175894	CC357324
Cylinder Certification Date:	3/3/2011	3/31/2014
Cylinder Expiration Date:	3/3/2019	3/31/2022
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	128.5	280.1

Calibration Gas Audit Results		
	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	109.23	238.09
Range of Allowance (±15%) High	147.78	322.12
Test Run #1	126.63	279.24
Test Run #2	127.30	279.22
Test Run #3	127.78	278.99
Average Result (Cm)	127.23	279.15
Accuracy (%)	-0.99	-0.34
Allowable Accuracy Error (%)	± 15%	± 15%
Test Results		

TEST WAS SUCCESSFUL!

Tag #:	31-Al-1A	Calender Quarter:	FOURTH	
Unit:	#2 SRU	Analyzer Span:	0 - 25%	
Component:	OXYGEN (O ₂)	Serial Number:	C149549	
Date:	Thursday, October 25, 2018	Technician:	JACOB PAZUREK	
Start Time:	10:24	End Time:		11:01

Cylinder Gas Pressure Values

Cylinder Pressure (Start)		
Low Range	1050	
High Range	900	

Cylinder Pressure (End)		
Low Range 1045		
High Range 895		

Cylinder Gas Information			
	Low Calibration Gas	High Calibration Gas	
Cylinder Certification Number:	CC37936	CC175979	
Cylinder Certification Date:	7/5/2011	7/7/2011	
Cylinder Expiration Date:	7/5/2019	7/7/2019	
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One	
Concentration (ppm or % Ca):	5.122	10.070	

Calibration Gas Audit Results			
	Low Cal Gas	High Cal Gas	
Range of Allowance (±15%) Low	4.35	8.56	
Range of Allowance (±15%) High	5.89	11.58	
Test Run #1	5.13	10.12	
Test Run #2	5.12	10.10	
Test Run #3	5.12	10.10	
Average Result (Cm)	5.12	10.11	
Accuracy (%)	0.03	0.37	
Allowable Accuracy Error (%)	± 15%	± 15%	
Test Results			

TEST WAS SUCCESSFUL!

Tag #:	31-AI-1B	Calender Quarter:	FOURTH
	#2 SRU	Analyzer Span:	0 - 500 PPM
Component:	SULFUR DIOXIDE (SO ₂)	Serial Number:	6981
Date:	Thursday, October 25, 2018	Technician:	JACOB PAZUREK
Start Time:	10:24	End Time:	11:01

Cylinder Gas Pressure Values

Cylinder Pressure (Start)			
Low Range 1050			
High Range 900			

Cylinder Pressure (End)			
Low Range 1045			
High Range	895		

Cylinder Gas Information			
	Low Calibration Gas	High Calibration Gas	
Cylinder Certification Number:	CC37936	CC175979	
Cylinder Certification Date:	7/5/2011	7/7/2011	
Cylinder Expiration Date:	7/5/2019	7/7/2019	
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One	
Concentration (ppm or % Ca):	127.000	279.500	

Calibration Gas Audit Results				
Low Cal Gas High Cal Gas				
Range of Allowance (±15%) Low	107.95	237.58		
Range of Allowance (±15%) High	146.05	321.43		
Test Run #1	127.21	282.70		
Test Run #2	127.26	282.32		
Test Run #3	128.72	283.03		
Average Result (Cm)	127.73	282.68		
Accuracy (%)	0.57	1.14		
Allowable Accuracy Error (%)	± 15%	± 15%		
Test Results				

TEST WAS SUCCESSFUL!

Saint Paul Park Refinery Opacity Audit Saint Paul Park, MN

Tag #:	8-AI-3A	Filter Certification Date:	May 15, 2018
Unit:	FCC	Note: Cert. date must	be no later than 6 months of test
Date:	Monday, October 29, 2018	Instrument Serial No:	440-A-6000044023-B21/423
Technician:	BRYAN WINN	Monitor Pathlength	60.125"
Start Time:	13:44	Outlet Pathlength:	60.125"
End Time:	15:08	Pathlength Corrected:	No

Calibrated Neutral Density Filter Values

Actual Optical Density Filter Values			
Low Range	10.65		
Mid Range	19.68		
High Range 34.42			

Adjusted Optical Density Filter Values			
Low Range N/A			
Mid Range	N/A		
High Range N/A			

	Opacity Audit Readings					
Run Number Range		Calibration Filter Instrument Reading		Arithmetic Values (Ca - Cm)		
Kun Number	Ivalige	(%Ca)	(%Cm)	Low	Mid	High
1-1	Low	10.65	12.31	-1.66	$ \nearrow \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! $	\searrow
1-2	Mid	19.68	20.45	\mathbb{N}	-0.77	\searrow
1-3	High	34.42	35.63	\mathbb{Z}	\mathbb{N}	-1.21
2-1	Low	10.65	12.34	-1.69	$\gg <$	$>\!\!<$
2-2	Mid	19.68	20.74	\searrow	-1.06	>>
2-3	High	34.42	35.74	$\searrow \swarrow$	$>\!\!<$	-1.32
3-1	Low	10.65	12.22	-1.57	\mathbb{N}	$>\!\!<$
3-2	Mid	19.68	20.54	\searrow	-0.86	> <
3-3	High	34.42	35.62	$\searrow \swarrow$	$>\!\!<\!\!<$	-1.20
4-1	Low	10.65	12.51	-1.86	\mathbb{N}	$>\!\!<$
4-2	Mid	19.68	20.74	$>\!\!<$	-1.06	$>\!\!<$
4-3	High	34.42	35.74	\triangleright		-1.32
5-1	Low	10.65	12.34	-1.69	$>\!\!<$	$>\!\!<$
5-2	Mid	19.68	20.75	\triangleright	-1.07	$>\!\!<$
5-3	High	34.42	35.74	>><	\searrow	-1.32

Opacity Audit Results			
	Low	Mid	High
Arithmetic Mean	-1.69	-0.96	-1.27
Standard Deviation	0.11	0.14	0.06
Confidence Coefficient	0.13	0.17	0.08
Calibration Error (%)	1.82	1.14	1.35
Allowable Calibration Error (%)	≤ 3%	≤ 3%	≤ 3%
Test Results		·	

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from Saint Paul Park Refining Company (SPPRC) Title V Permit and QA/QC Program per Minnesota State Rule 7017 Subpart (1).

Tag #:	08-AI-0030B	Calender Quarter:	FOURTH
Unit:	8-B-1	Analyzer Span:	0 - 100 PPM
Component:	OXIDES OF NITROGEN (NO _X)	Serial Number:	3.359841-2
Date:	Thursday, November 1, 2018	Technician:	BRYAN WINN
Start Time:	10:02	End Time:	11:19

Cylinder Gas Pressure Values

Cylinder Pressure (Start)			
Low Range 1870			
High Range	1390		

Cylinder Pressure (End)		
Low Range	1840	
High Range	1330	

Cylinder Gas Information		
	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC323462	XC024745B
Cylinder Certification Date:	3/28/2016	2/21/2011
Cylinder Expiration Date:	3/28/2019	2/21/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	25.34	54.45

Calibration Gas Audit Results		
	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	21.54	46.28
Range of Allowance (±15%) High	29.14	62.62
Test Run #1	24.47	53.84
Test Run #2	24.69	53.83
Test Run #3	24.54	53.89
Average Result (Cm)	24.57	53.86
Accuracy (%)	-3.06	-1.09
Allowable Accuracy Error (%)	± 15%	± 15%
Test Results		

TEST WAS SUCCESSFUL!

Tag #:	08-AI-0030A	Calender Quarter:	FOURTH
Unit:	8-B-1	Analyzer Span:	0 - 15%
Component:	OXYGEN (O ₂)	Serial Number:	3.359909.2
Date:	Thursday, November 1, 2018	Technician:	BRYAN WINN
Start Time:	10:02	End Time:	11:19

Cylinder Gas Pressure Values

Cylinder Pressure (Start)		
Low Range	1950	
High Range	1400	

Cylinder Pressure (End)	
Low Range	1910
High Range	1390

Cylinder Gas Information		
	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC92289	EB0020125
Cylinder Certification Date:	7/8/2018	10/7/2011
Cylinder Expiration Date:	7/8/2026	10/7/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	4.976	10.010

Calibration Gas Audit Results		
	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	4.23	8.51
Range of Allowance (±15%) High	5.72	11.51
Test Run #1	4.99	10.00
Test Run #2	4.98	9.99
Test Run #3	4.98	10.00
Average Result (Cm)	4.98	10.00
Accuracy (%)	0.18	-0.14
Allowable Accuracy Error (%)	± 15%	± 15%
Test Results		

TEST WAS SUCCESSFUL!

Tag #:	32-AI-251	Calender Quarter:	FOURTH
Unit:	HDH	Analyzer Span:	0 - 100 PPM
Component:	OXIDES OF NITROGEN (NO _X)	Serial Number:	3.346654.7
Date:	Wednesday, November 7, 2018	Technician:	BRYAN WINN
Start Time:	7:19	End Time:	8:36

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range 1900	
High Range	1460

Cylinder Pressure (End)	
Low Range	1895
High Range	1440

Cylinder Gas Information		
Low Calibration Gas High Calibration Gas		
Cylinder Certification Number:	CC419354	CC400311
Cylinder Certification Date:	1/3/2017	7/10/2013
Cylinder Expiration Date:	1/3/2020	7/10/2021
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	24.79	57.71

Calibration Gas Audit Results				
Low Cal Gas High Cal Gas				
Range of Allowance (±15%) Low	21.07	49.05		
Range of Allowance (±15%) High	28.51	66.37		
Test Run #1	24.21	58.08		
Test Run #2	24.25	57.91		
Test Run #3	24.51	58.22		
Average Result (Cm)	24.32	58.07		
Accuracy (%)	-1.90	0.63		
Allowable Accuracy Error (%)	± 15%	± 15%		
Test Results				

TEST WAS SUCCESSFUL!

Tag #:	32-AI-250	Calender Quarter:	FOURTH
Unit:	HDH	Analyzer Span:	0 - 10%
Component:	OXYGEN (O₂)	Serial Number:	3.346624.7
Date:	Wednesday, November 7, 2018	Technician:	BRYAN WINN
Start Time:	7:19	End Time:	8:36

Cylinder Gas Pressure Values

Cylinder Pressure (Start)			
Low Range 1610			
High Range 1590			

Cylinder Pressure (End)		
Low Range	1600	
High Range	1560	

Cylinder Gas Information			
Low Calibration Gas High Calibration Gas			
Cylinder Certification Number:	CC327623	CC337712	
Cylinder Certification Date:	2/4/2011	2/3/2011	
Cylinder Expiration Date:	2/4/2019	2/3/2019	
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One	
Concentration (ppm or % Ca):	5.023	10.000	

Calibration Gas Audit Results				
Low Cal Gas High Cal Gas				
Range of Allowance (±15%) Low	4.27	8.50		
Range of Allowance (±15%) High	5.78	11.50		
Test Run #1	5.01	10.00		
Test Run #2	5.01	10.00		
Test Run #3	5.02	10.00		
Average Result (Cm)	5.01	10.00		
Accuracy (%)	-0.17	-0.03		
Allowable Accuracy Error (%)	± 15%	± 15%		
Test Results				

TEST WAS SUCCESSFUL!

Tag #:	14-AI-146	Calender Quarter:	FOURTH
Tag #: Unit:	FLARE	Analyzer Span:	0 - 300 PPM
Component:	HYDROGEN SULFIDE (H ₂ S)	Serial Number:	1060
Date:	Monday, November 19, 2018	Technician:	JACOB PAZUREK
Start Time:	14:06	End Time:	14:33

Cylinder Gas Pressure Values

Cylinder Pressure (Start)			
Low Range 2080			
High Range 2090			

Cylinder Pressure (End)		
Low Range	2075	
High Range	2080	

Cylinder Gas Information				
Low Calibration Gas High Calibration Gas				
Cylinder Certification Number:	CC281328	CC358803		
Cylinder Certification Date:	1/11/2018	1/10/2018		
Cylinder Expiration Date:	1/11/2021	1/10/2021		
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One		
Concentration (ppm or % Ca):	76.2	166.0		

Calibration Gas Audit Results		
	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	64.76	141.10
Range of Allowance (±15%) High	87.62	190.90
Test Run #1	72.22	159.20
Test Run #2	70.69	177.51
Test Run #3	73.74	168.36
Average Result (Cm)	72.22	168.36
Accuracy (%)	-5.22	1.42
Allowable Accuracy Error (%)	± 15%	± 15%
Test Results		

TEST WAS SUCCESSFUL!

Tag #:	14-AI-106	Calender Quarter:	FOURTH
Unit:	WASTE WATER	Analyzer Span:	0 - 300 PPM
Component:	HYDROGEN SULFIDE (H ₂ S)	Serial Number:	H004440001
Date:	Monday, November 19, 2018	Technician:	JACOB PAZUREK
Start Time:	10:45	End Time:	11:26

Cylinder Gas Pressure Values

Cylinder Pressure (Start)		
Low Range	2090	
High Range	2060	

Cylinder Pressure (End)		
Low Range	2080	
High Range	2040	

Cylinder Gas Information		
	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC281328	CC358803
Cylinder Certification Date:	1/11/2018	1/10/2018
Cylinder Expiration Date:	1/11/2021	1/10/2021
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	76.2	166.0

Calibration Gas Audit Results		
	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	64.76	141.10
Range of Allowance (±15%) High	87.62	190.90
Test Run #1	72.28	181.70
Test Run #2	73.00	182.70
Test Run #3	72.92	182.30
Average Result (Cm)	72.73	182.23
Accuracy (%)	-4.54	9.78
Allowable Accuracy Error (%)	± 15%	± 15%
Test Results		

TEST WAS SUCCESSFUL!

Tag #:	14-AI-147 - RANGE A	Calender Quarter:	FOURTH
Unit:	FLARE	Analyzer Span:	0-5000 PPM
Component:	H ₂ S AS SULFUR DIOXIDE (SO ₂)	Serial Number:	SL-09790714
Date:	Tuesday, November 20, 2018	Technician:	JACOB PAZUREK
Start Time:	12:51	End Time:	15:28

Cylinder Gas Pressure Values

Cylinder Pressure (Start)		
Low Range	2090	
High Range	2020	

Cylinder Pressure (End)		
Low Range	2080	
High Range	2010	

Cylinder Gas Information			
Low Calibration Gas High Calibration Gas			
Cylinder Certification Number:	CC472743	ALM036140	
Cylinder Certification Date:	7/28/2017	7/13/2018	
Cylinder Expiration Date:	7/28/2020	7/13/2021	
Type of Cylinder Certification:	Certified Standard- Spec	Certified Standard- Spec	
Concentration (ppm or % Ca):	1259.0	2759.0	

Calibration Gas Audit Results		
	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	1070.15	2345.15
Range of Allowance (±15%) High	1447.85	3172.85
Test Run #1	1261.70	2577.70
Test Run #2	1261.30	2740.20
Test Run #3	1254.70	2764.30
Average Result (Cm)	1259.23	2694.07
Accuracy (%)	0.02	-2.35
Allowable Accuracy Error (%)	± 15%	± 15%
Test Results		

TEST WAS SUCCESSFUL!

Tag #:	14-AI-147 - RANGE B	Calender Quarter:	FOURTH
Unit:	FLARE	Analyzer Span:	0-50%
Component:	H ₂ S AS SULFUR DIOXIDE (SO ₂)	Serial Number:	SL-09790714
Date:	Tuesday, November 20, 2018	Technician:	JACOB PAZUREK
Start Time:	12:51	End Time:	15:28

Cylinder Gas Pressure Values

Cylinder Pressure (Start)		
Low Range	1600	
High Range	1420	

Cylinder Pressure (End)		
Low Range	1595	
High Range	1415	

Cylinder Gas Information			
	Low Calibration Gas	High Calibration Gas	
Cylinder Certification Number:	CC57840	DT0015162	
Cylinder Certification Date:	7/27/2017	12/7/2016	
Cylinder Expiration Date:	7/27/2020	12/7/2019	
Type of Cylinder Certification:	Certified Hydrocarbon	Certified Standard- Spec	
Concentration (ppm or % Ca):	12.5	27.5	

Calibration Gas Audit Results		
	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	10.63	23.40
Range of Allowance (±15%) High	14.38	31.66
Test Run #1	12.45	26.71
Test Run #2	12.48	27.17
Test Run #3	12.42	27.00
Average Result (Cm)	12.45	26.96
Accuracy (%)	-0.39	-2.06
Allowable Accuracy Error (%)	± 15%	± 15%
Test Results		

TEST WAS SUCCESSFUL!

Tag #: Unit:	11-ĀI-1	Calender Quarter:	FOURTH
Unit:	REFORMER	Analyzer Span:	0 - 300 PPM
Component:	HYDROGEN SULFIDE (H₂S)	Serial Number:	G0024
Date:	Thursday, November 29, 2018	Technician:	BRYAN WINN
Start Time:	11:09	End Time:	12:15

Cylinder Gas Pressure Values

Cylinder Pressure (Start)		
Low Range	2150	
High Range	2150	

Cylinder Pressure (End)		
Low Range	2100	
High Range 2100		

Cylinder Gas Information			
	Low Calibration Gas	High Calibration Gas	
Cylinder Certification Number:	CC281328	CC358803	
Cylinder Certification Date:	1/11/2018	1/10/2018	
Cylinder Expiration Date:	1/11/2021	1/10/2021	
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One	
Concentration (ppm or % Ca):	76.2	166.0	

Calibration Gas Audit Results		
	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	64.76	141.10
Range of Allowance (±15%) High	87.62	190.90
Test Run #1	68.02	189.3
Test Run #2	70.22	187.0
Test Run #3	70.40	187.1
Average Result (Cm)	69.55	187.80
Accuracy (%)	-8.72	13.13
Allowable Accuracy Error (%)	± 15%	± 15%
Test Results		

TEST WAS SUCCESSFUL!

Tag #:	8-AI-2A	Calender Quarter:	FOURTH
Unit:	FCC	Analyzer Span:	0 - 10%
Component:	OXYGEN (O ₂)	Serial Number:	3.249395.1
Date:	Tuesday, November 27, 2018	Technician:	BRYAN WINN
Start Time:	8:34	End Time:	11:21

Cylinder Gas Pressure Values

Cylinder Pressure (Start)		
Low Range	1900	
High Range	2040	

Cylinder Pressure (End)		
Low Range	1890	
High Range	1990	

Cylinder Gas Information				
	Low Calibration Gas	High Calibration Gas		
Cylinder Certification Number:	CC36388	SG9120802BAL		
Cylinder Certification Date:	2/7/2018	2/2/2018		
Cylinder Expiration Date:	2/7/2026	2/2/2026		
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One		
Concentration (ppm or % Ca):	4.982	10.140		

Calibration Gas Audit Results		
	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	4.23	8.62
Range of Allowance (±15%) High	5.73	11.66
Test Run #1	5.00	10.23
Test Run #2	4.97	10.22
Test Run #3	4.97	10.23
Average Result (Cm)	4.98	10.23
Accuracy (%)	-0.08	0.86
Allowable Accuracy Error (%)	± 15%	± 15%
Test Results		

TEST WAS SUCCESSFUL!

Tag #:	8-AI-6	Calender Quarter:	FOURTH
Unit:	FCC	Analyzer Span:	0 - 1000 PPM
Component:	CARBON DIOXIDE (CO₂)	Serial Number:	3.249390.1
Date:	Tuesday, November 27, 2018	Technician:	BRYAN WINN
Start Time:	8:34	End Time:	11:21

Cylinder Gas Pressure Values

Cylinder Pressure (Start)		
Low Range	1900	
High Range	2040	

Cylinder Pressure (End)		
Low Range	1890	
High Range	1990	

Cylinder Gas Information				
	Low Calibration Gas	High Calibration Gas		
Cylinder Certification Number:	CC36388	SG9120802BAL		
Cylinder Certification Date:	2/7/2018	2/2/2018		
Cylinder Expiration Date:	2/7/2026	2/2/2026		
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One		
Concentration (ppm or % Ca):	7.44	16.31		

Calibration Gas Audit Results		
	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	6.33	13.86
Range of Allowance (±15%) High	8.56	18.76
Test Run #1	7.33	15.96
Test Run #2	7.34	15.95
Test Run #3	7.34	15.95
Average Result (Cm)	7.34	15.95
Accuracy (%)	-1.43	-2.18
Allowable Accuracy Error (%)	± 15%	± 15%
Test Results		

TEST WAS SUCCESSFUL!

Tag #:	8-AI-7	Calender Quarter:	FOURTH
Unit:	FCC	Analyzer Span:	0 - 500 PPM
Component:	OXIDES OF NITROGEN (NO _X)	Serial Number:	3.240138.2
Date:	Tuesday, November 27, 2018	Technician:	BRYAN WINN
Start Time:	8:34	End Time:	11:21

Cylinder Gas Pressure Values

Cylinder Pressure (Start)		
Low Range	990	
High Range	1100	

Cylinder Pressure (End)		
Low Range	940	
High Range	1090	

Cylinder Gas Information			
Low Calibration Gas High Calibration Gas			
Cylinder Certification Number:	SG9113283BAL	SG9163697BAL	
Cylinder Certification Date:	2/23/2011	2/24/2011	
Cylinder Expiration Date:	2/23/2019	2/24/2019	
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One	
Concentration (ppm or % Ca):	123.5	274.5	

Calibration (Gas Audit Results	3
	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	104.98	233.33
Range of Allowance (±15%) High	142.03	315.68
Test Run #1	124.45	277.35
Test Run #2	124.53	276.62
Test Run #3	124.37	276.44
Average Result (Cm)	124.45	276.80
Accuracy (%)	0.77	0,84
Allowable Accuracy Error (%)	± 15%	± 15%
Test Results		

TEST WAS SUCCESSFUL!

Tag #:	8-AI-5	Calender Quarter:	FOURTH
Unit:	FCC	Analyzer Span:	0 - 1000 PPM
Component:	CARBON MONOXIDE (CO)	Serial Number:	3.249390.1
Date:	Tuesday, November 27, 2018	Technician:	BRYAN WINN
Start Time:	8:34	End Time:	11:21

Cylinder Gas Pressure Values

Cylinder Pressure (Start)		
Low Range	1900	
High Range	2040	

Cylinder Pressure (End)	
Low Range 1890	
High Range 1990	

Cylinder Gas Information		
	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC36388	SG9120802BAL
Cylinder Certification Date:	2/7/2018	2/2/2018
Cylinder Expiration Date:	2/7/2026	2/2/2026
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	238.60	542.90

Calibration Gas Audit Results		
	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	202.81	461.47
Range of Allowance (±15%) High	274.39	624.34
Test Run #1	241.05	543.56
Test Run #2	241.40	543.55
Test Run #3	241.42	543.60
Average Result (Cm)	241.29	543.57
Accuracy (%)	1.13	0.12
Allowable Accuracy Error (%)	± 15%	± 15%
Test Results		

TEST WAS SUCCESSFUL!

Tag #:	8-AI-2B	Calender Quarter:	FOURTH
Unit:	FCC	Analyzer Span:	0 - 3000 PPM
Component:	SULFUR DIOXIDE (SO ₂)	Serial Number:	3.240138.2
Date:	Tuesday, November 27, 2018	Technician:	BRYAN WINN
Start Time:	8:34	End Time:	11:21

Cylinder Gas Pressure Values

Cylinder Pressure (Start)		
Low Range	1210	
High Range	1100	

Cylinder Pressure (End)				
Low Range	1190			
High Range	High Range 1060			

Cylinder Gas Information		
	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC128882	CC152607
Cylinder Certification Date:	9/16/2011	9/20/2011
Cylinder Expiration Date:	9/16/2019	9/20/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	782.1	1699.0

Calibration Gas Audit Results					
	Low Cal Gas	High Cal Gas			
Range of Allowance (±15%) Low	664.79	1444.15			
Range of Allowance (±15%) High	899.42	1953.85			
Test Run #1	790.28	1720.17			
Test Run #2	793.91	1717.81			
Test Run #3	791.72	1719.00			
Average Result (Cm)	791.97	1718.99			
Accuracy (%)	1.26	1.18			
Allowable Accuracy Error (%)	± 15%	± 15%			
Test Results					

TEST WAS SUCCESSFUL!



Opacity Certification Services, LLC

A Proud Veteran-Owned Business

Raleigh, North Carolina 27615 Phone 919.215.9384 Fax 919.846.6041

Web: www.epacare.com, one

Results of NIST-Traceable Filter (Audit Attenuators) Certification

Customer: St. Paul Park Refining

Date of Certification:	Mar 14, 301%	DN-	051510 02
Date of Expiration:		Document No.	051518-03

Filters (Attenuators) are certified in accordance with 40 CFR Part 60, Subpart B, "Performance Specification 1", as well as the most current ASTM D6216 standard and Opacity Procedure 3. Laboratory spectrophotometer is calibrated daily by use of NIST SRM2031b standard reference materials.

Spectrophotometer

Spectrophotometer: Varian (HP) Cary 50 Conc			50 Conc	Serial Numb	er: EL06023153
Γ	Scanning Ran	ge: 380-780nm	Data Interva	l: 10nm	Spectral Bandpass: 1.5nm
	Maximum Ac	curacy: ± 0.250 Absolute	Opacity	Laboratory 7	Temperature: 72° F (± 3°)/22° C (± 1°)

NIST Standard Reference Material (SRM)

SRM Type: NIST 2031b series	Serial Number: Blank; 709-10; 709-30; 709-90
SRM Date of Certification: February 22, 2017	SRM Date of Expiration: February 28, 2019

Opacity Monitor

Opacity Monitor Make/M	fodel: Theri	mo Environmental 440 series	
Monitor Light Source:	Incandescent	Straight stack correction factor:	1.000
Angle of Incidence:	10 degrees	Correction factor (if given):	1.000

Opacies Filt	er Data				
Serial Number	Opacity	Transmittance	Optical Density	Previous Opacity	Δ Opacity
3002	10.65%	89.35%	0.0489	10.67%	-0.02
SK22	19.68%	80.32%	0.0952	19.85%	-0.17
SK23	34.42%	65.58%	0.1832	34.48%	-0.06

Signature of Spectrophotometer Operator

Filter Certification Results for: St. Paul Park Refining

Filter Serial No: 3002

Date of Scan: 5/15/2018

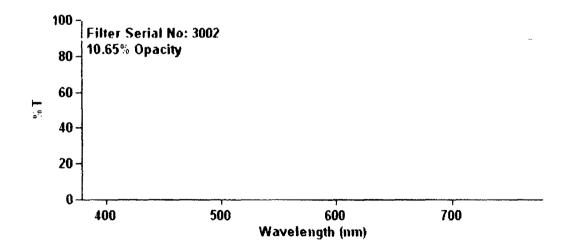
Opacity Value = 10.65%

Expiration Date:

Monitor: Thermo 440 series Angle of Incidence: 10 deg Transmittance = 89.35% Optical density = 0.0489

Table 1-1: Opacity filter Scan Data at 10 nm Intervals

Lambda	Scan 1	Scan 2	Average	% Trans	Lambda	Scan 1	Scan 2	Average	% Trans
780	89.7	89.7	89.7	0.0	570	89.3	89.3	89.3	816781.
770	89.7	89.7	89.7	0.0	560	89.3	89.3	89.3	878867.
760	89.7	89.7	89.7	89.7	550	89.3	89.2	89.2	877418.
750	89.7	89.6	89.7	89.7	540	89.4	89.3	89.3	821351.
740	89.7	89.7	89.7	179.4	530	89.3	89.3	89.3	708€01.
730	89.6	89.7	89.6	268.9	520	89.4	89.4	89.4	577598.
720	89.6	89.6	89.€	537.4	510	89.3	89.4	89.3	431788.
710	89.6	89.6	89.6	1254.0	500	89.3	89.3	89.3	303825.
700	89.5	89.5	89.5	2595.4	490	89.4	89.4	89.4	210792.
690	89.5	89.6	89.5	5550.3	486	89.5	89.4	89.5	144730.
680	89.5	89.4	89.5	11989.4	470	89.5	89.5	89.5	94694.6
67C	89.4	89.4	89.4	23152.2	460	89.5	89.5	89.5	62125.7
660	89.4	89.4	89.4	45051.9	450	89.6	89.7	89.6	39709.2
650	89.3	89.3	89.3	79138.2	440	89.6	89.6	89.6	23477.7
640	89.3	89.3	89.3	128840.	430	89.7	89.7	89.7	10946.3
630	89.3	89.3	89.3	195573.	420	89.8	89.8	89.8	3321.5
620	89.3	89.3	89.3	281659.	410	89.9	89.9	89.9	809.0
610	89.3	89.3	89.3	372949.	400	89.9	89.9	89.9	179.8
600	89.3	89.3	89.3	474623.	390	89.9	89.9	89.9	0.0
590	89.3	89.3	89.3	591596.	380	89.6	89.6	89.€	3.0
580	89.3	89.3	89.3	713382.		0.0	0.0	0.0	0.0



Filter Certification Results for: St. Paul Park Refining

Filter Serial No: SK22

Date of Scan: 5/15/2018 Opacity Value = 19.68%

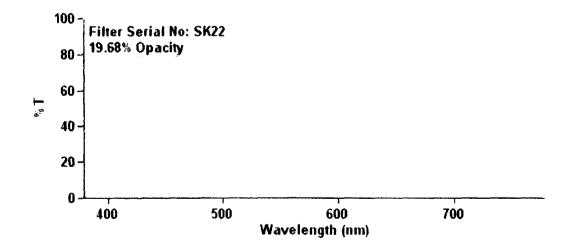
Expiration Date:

Monitor: Thermo 440 series
Angle of Incidence: 10 deg

Transmittance = 80.32%
Optical density = 0.0952

Table 1-1: Opacity filter Scan Data at 10 nm Intervals

Lambda	Scan 1	Scan 2	Average	% Trans	Lambda	Scan 1	Scan 2	Average	% Trans
780	82.0	82.0	82.0	0.0	570	80.5	80.4	80.5	735950.
770	81.9	82.0	82.0	0.0	560	80.4	80.4	80.4	791087.
760	81.9	81.9	81.9	81.9	550	80.2	80.2	80.2	788501.
750	81.8	81.9	81.8	81.8	540	80.2	80.2	80.2	737215.
740	81.8	81.8	81.8	163.7	530	80.0	80.0	80.0	634539.
730	81.8	81.8	81.8	245.4	520	79.9	79.9	79.9	516535.
720	81.7	81.7	81.7	490.2	510	79.7	79.8	79.8	385460.
710	81.7	81.7	81.7	1143.5	500	79.6	79.6	79.6	270674.
700	81.5	81.6	81.5	2363.8	490	79.5	79.5	79.5	187429.
690	81.5	81.5	81.5	5053.4	480	79.3	79.3	79.3	128326.
680	81.4	81.4	81.4	10913.4	470	79.2	79.2	79.2	83809.1
670	81.3	81.3	81.3	21059.7	460	79.0	79.1	79.0	54858.9
660	81.3	81.3	81.3	40963.2	450	79.0	79.0	79.0	34991.9
650	81.2	81.1	81.1	71885.1	440	78.6	78.6	78.6	20599.1
640	81.3	81.0	81.1	116966.	430	78.5	78.5	78.5	9577.1
630	81.0	81.0	81.0	177324.	420	78.2	78.2	78.2	2894.8
620	80.9	80.9	80.9	255137.	410	78.1	78.1	78.1	702.8
610	80.8	80.9	80.9	337663.	400	77.8	77.8	77.8	155.6
600	80.7	80.7	80.7	429175.	390	77.4	77.5	77.4	0.0
590	80.7	80.6	80.6	534371.	380	76.8	76.8	76.8	0.0
580	80.6	80.6	80.6	643878.		0.0	0.0	0.0	0.0



Filter Certification Results for: St. Paul Park Refining

Filter Serial No: SK23

Date of Scan: 5/15/2018 Opacity Value = 34.42%

Expiration Date:

Monitor: Thermo 440 series

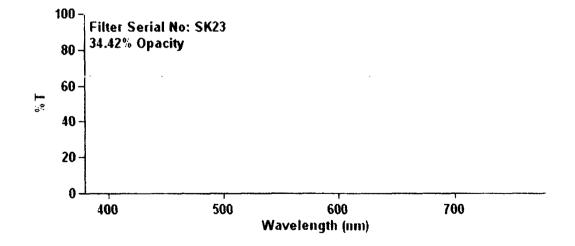
Angle of Incidence: 10 deg

Transmittance = 65.58%

Optical density = 0.1832

Table 1-1: Opacity filter Scan Data at 10 nm Intervals

Lambda	Scan l	Scan 2	Average	% Trans	Lambda	Scan 1	Scan 2	Average	% Trans
780	66.2	66.1	66.1	0.0	570	65.6	65.5	65.6	599701.
770	66.0	66.1	66.1	0.0	560	65.6	65.5	65.6	645149.
760	66.0	66.0	66.0	66.0	550	65.5	65.5	65.5	643830.
750	66.0	6€.0	66.0	66.0	540	65.6	65.5	65.5	602508.
740	66.0	66.0	66.0	132.0	530	65.5	65.5	65.5	519755.
730	65.9	66.0	66.0	197.9	520	65.6	65.6	65.6	423717.
720	65.9	65.9	65.9	395.5	510	65.5	65.5	65.5	316677.
710	65.9	65.9	65.9	922.5	500	65.5	65.5	65.5	222755.
700	65.8	65.9	65.8	1909.3	490	65.5	65.5	65.5	154505.
690	65.8	65.8	65.8	4081.1	480	65.6	65.6	65.6	106128.
680	65.8	65.8	65.8	8818.2	470	65.6	65.6	65.6	69440.2
670	65.7	65.7	65.7	17025.1	460	65.6	65.6	65.6	45535.8
660	65.7	65.7	65.7	33125.6	450	65.8	65.8	65.8	29146.8
650	65.7	65.7	65.7	58209.1	440	65.7	65.7	65.7	17206.1
640	65,6	65.7	65.6	94729.9	430	65.7	65.7	65.7	8018.3
630	65.6	65.7	65.6	143765.	420	65.7	65.7	65.7	2432.0
620	65.6	65.6	65.6	206953.	410	65.8	65.8	65.8	592.1
610	65.7	65.6	65.7	274159.	400	65.8	65.8	65.8	131.6
600	65.6	65.6	65.6	348693.	390	65.8	65.7	65.8	0.0
590	65.6	65.6	65.6	434604.	380	65.6	65.6	65.6	0.0
580	65.5	65.5	65.5	523846.		0.0	0.0	0.0	0.0



Appendix B

Amended 1QTR18 CEMS Excess Emissions and Downtime Report, Incident B – FCC Unit Trip Due to Low Feed Narrative,

Amended 1st Quarter 2018 – Percent Excess Emissions and CEM Downtime Summary

Amended Individual FCC CO Excess Emission and CEM Reporting Forms

Section 1 **Report Certification**

Certification for Amended First Quarter 2018 CEM Excess Emission and CEM Downtime **Report - Narrative and Reporting Forms**

This section of the report serves as the St. Paul Park Refining Co. LLC and Western Refining Terminals LLC's written certification of the information contained within this report. This certification is comprehensive of the entire report and replaces the need for certification of each of the Excess Emissions and CEM Reporting Forms.

St. Paul Park Refining Co. LLC & Western Refining Terminal LLC

Based on the information and belief formed after reasonable inquiry, the statements and information in this report are true, accurate, and complete.

Tommy Chavez, Vice President and Refinery Manager

Date

Excess Emissions Summary First Quarter 2018

Excess Emissions Summary

Incident A - Flare Gas Exceedance during Hydrogen Plant Pressure Swings

On 1/2/18 and 1/5/18 the flow to the flare header spiked up several times and sequentially the H2S concentration at the flare analyzer spiked up. The H2S in the flare gas exceeded the 162 ppm 3-hr limit on 1/2/18 at 8:00 am and again on 1/5/18 at 4:00 am. During these periods, there were spikes in Hydrogen Plant PSA feed gas sent through the flare header that swept existing pockets of H2S to the flare. Subzero temperatures had occurred on these dates and caused pressure swings on certain equipment in the Hydrogen Plant and increased venting to the flare header. Checks were made to verify accuracy of instrument readings on equipment. A PSV was inspected and tested to ensure it was operating properly, a pressure transmitter was replaced on PSA bed 4 and replacement of positioners on other PSA bed valves was also planned. Flare H2S scavenger was used to reduce flare H2S emissions during the event.

There were no exceedances of the flare 500 lbs. SO₂ /24-hour reportable quantity or applicable flare vent gas work practice standard. SPPRC believes these periods to be exempt under SSM provisions of the regulations and is providing the data for informational purposes only.

Periods Over 162 ppm H ₂ S, 3-hour Avg.	Date and Time	Measured 3- Hour Avg. (ppm H ₂ S)
1	01/02/2018, 08:00	170
2	01/05/2018, 04:00	243
3	01/05/2018, 05:00	284
4	01/05/2018, 06:00	240

Incident B-FCC Unit Trip Due to Low Feed

On 1/12/2018 at approximately 8:18 PM, a control valve closed causing low feed flow to the riser and resulted in a safety instrumentation system (SIS) trip of the FCC unit. Instrumentation found a cap/plug missing in the failed key switch in a control panel which resulted in a loss of air pressure at the redundant valve solenoids. Without the air pressure in the solenoids, the valve failed closed. The key switch was replaced and the system was tested to prove functionality. The missing cap/plug on the key switch was determined to be a manufacturer's defect in the panel design. Surveys were completed on other similar control panels to determine if they were leaking air and had a similar failure point on their key switch. Those found with the same defect were replaced.

On 1/13/2018 at approximately 8:18 PM, feed was introduced back into the unit during start-up. As feed was introduced, pressure built-up in the scrubber system and relieved to the flare resulting in three exceedances of the flare 162 ppm 3-hr rolling average limit. Operations found a frozen pipe between the mercaptan extractor and the polarex separator section. Operations applied steam to thaw the frozen pipe and continued with the startup procedure. Flare H2S scavenger was used to reduce flare H2S emissions during the event-

The malfunction and start-up of the FCC Unit resulted in 84 exceedances of the 30% opacity/6-minute average limit and three exceedances of the flare 162 ppm 3-hr rolling average limit-which were reported in the 1QTR18 CEMS Downtime and Excess Emissions report. However, the exceedances of the 500 ppm/1-hr CO limit were inadvertently excluded from the description of the event in the narrative and corresponding FCC CEMS worksheets and 1QTR18 summary page. It was assumed that since all the exceedances occurred during SU/SD of the unit and the %O2 was maintained >1% that the excess emissions were not reportable. While this is the case under MACT UUU, the excess emissions are still reportable under NSPS J.

Start-up and shutdown unit resulted in 23 exceedances of the 500 ppm/1-hr CO limit. Since measured CO data points are not verifiable or accurate when 50% greater than the high calibration gas concentration, a value of 1,342.5 ppm (1.5 times the daily span calibration gas concentration of 895 ppm CO) was substituted for all greater data points. The recalculated and verifiable value is provided in the last column of the table. SPPRC believes these periods to be exempt under SSM provisions NSPS J of the regulations and is providing the data for informational purposes only.

There were no exceedances of the flare 500 lbs. SO₂ /24-hour reportable quantity or applicable flare vent gas work practice standard. SPPRC believes these periods to be exempt under SSM provisions of the regulations and is providing the data for informational purposes only.

Periods over 30% Opacity/6-min Avg. (Running total)	Periods over 30% Opacity/6-min Avg. Allowed	Date and Time	6-min Avg. Opacity (% opacity)
1	1	1/13/18 11:12	31.7
2		1/13/18 11:18	37.3
3		1/13/18 14:42	30.4
4		1/13/18 14:48	30.2
5		1/13/18 14:54	30.5
6	1	1/13/18 15:00	30.2
7		1/13/18 15:12	29.9
8		1/13/18 15:18	30.6
9		1/13/18 15:24	30.6
10		1/13/18 15:30	30.8
11		1/13/18 15:36	30.6
12		1/13/18 15:42	30.6
13		1/13/18 15:48	30.8
14		1/13/18 15:54	30.6
15	1	1/13/18 16:00	32.1
16		1/13/18 16:06	31.5
17		1/13/18 16:12	31.2
18		1/13/18 16:18	31.5
19		1/13/18 16:24	31.3
20		1/13/18 16:30	31.2

Periods over 30% Opacity/6-min Avg. (Running total)	Periods over 30% Opacity/6-min Avg.	Date and Time	6-min Avg. Opacity (% opacity)
	Allowed		
21		1/13/18 16:36	31.3
22		1/13/18 16:42	31.6
23		1/13/18 16:48	30.9
24		1/13/18 16:54	31.6
25	1	1/13/18 17:00	40.3
26		1/13/18 17:06	31.1
27		1/13/18 17:12	31.5
28		1/13/18 17:18	32.2
29		1/13/18 17:24	31.3
30		1/13/18 17:30	32.2
31		1/13/18 17:36	33.2
32		1/13/18 17:42	33.1
33		1/13/18 17:48	33.0
34		1/13/18 17:54	32.7
35	1	1/13/18 18:00	33.0
36		1/13/18 18:06	32.8
37		1/13/18 18:12	32.2
38		1/13/18 18:18	32.6
39		1/13/18 18:24	33.2
40		1/13/18 18:30	33.5
41		1/13/18 18:36	33.9
42		1/13/18 18:42	33.9
43		1/13/18 18:48	33.9
44		1/13/18 18:54	33.9
45	1	1/13/18 19:00	35.1
46		1/13/18 19:06	34.9
47		1/13/18 19:12	35.2
48		1/13/18 19:18	37.1
49		1/13/18 19:24	36.1
50		1/13/18 19:30	34.0
51		1/13/18 19:36	36.0
52		1/13/18 19:42	34.7
53		1/13/18 19:48	34.0
54		1/13/18 19:54	34.7
55	1	1/13/18 20:00	35.6
56		1/13/18 20:06	34.2
57		1/13/18 20:12	32.9
58		1/13/18 20:18	30.1

Periods over 30% Opacity/6-min Avg.	Periods over 30% Opacity/6-min	Date and Time	6-min Avg. Opacity (% opacity)
(Running total)	Avg. Allowed		
59		1/13/18 20:24	50.0
60		1/13/18 20:30	38.1
61		1/13/18 20:36	49.1
62		1/13/18 20:42	48.1
63		1/13/18 20:48	46.8
64		1/13/18 20:54	46.0
65	1	1/13/18 21:00	45.1
66		1/13/18 21:06	46.0
67		1/13/18 21:12	45.8
68		1/13/18 21:18	38.2
69		1/13/18 21:24	42.0
70		1/13/18 21:30	41.5
71		1/13/18 21:36	39.0
72		1/13/18 21:42	43.4
73		1/13/18 21:48	36.4
74		1/13/18 21:54	46.8
75	1	1/13/18 22:00	46.0
76		1/13/18 22:06	45.1
77		1/13/18 22:12	46.0
78		1/13/18 22:18	45.8
79		1/13/18 22:24	38.2
80		1/13/18 22:30	42.0
81		1/13/18 22:36	41.5
82		1/13/18 22:42	39.0
83		1/13/18 22:48	43.4
84		1/13/18 22:54	36.4
85		1/13/18 22:00	38.5
86		1/13/18 22:06	33.0
87		1/13/18 22:12	51.2
88		1/13/18 22:18	63.0
89		1/13/18 22:24	49.9
90		1/13/18 22:30	38.3
91		1/13/18 22:36	38.1
92		1/13/18 22:42	30.6
93	1	1/13/18 23:42	32.3
94		1/13/18 23:48	34.5
95		1/13/18 23:54	31.4
96	1	1/14/18 0:06	30.9

Periods over 30% Opacity/6-min Avg. (Running total)	Periods over 30% Opacity/6-min Avg. Allowed	Date and Time	6-min Avg. Opacity (% opacity)
97		1/14/18 0:12	30.6
98		1/14/18 0:30	31.2
99		1/14/18 0:36	32.1
100		1/14/18 0:42	33.6
101		1/14/18 0:48	33.5
102		1/14/18 0:54	31.5
103	1	1/14/18 1:00	34.7
104		1/14/18 1:06	31.9
105		1/14/18 1:12	30.9
106		1/14/18 1:18	30.7

Periods Over 162 ppm H ₂ S, 3-hour Avg.	Date and Time	Measured 3- Hour Avg. (ppm H ₂ S)
1	1/13/18 23:00	282_
2	1/14:00 00:00	368
3	1/14:00 01:00	373

Periods Over 500 ppm CO @ 0% O ₂ 1- hour Avg.	Date and End Time	Measured 1-Hour Avg. (ppm CO)	Verified 1-hour Avg. (ppm CO)	% O2
1	1/12/18, 21:00	925	617	>1%
2	1/12/18, 22:00	1802	1278	>1%
3	1/13/18, 00:00	1179	1084	>1%
4	1/13/2018 1:00	1968	1327	>1%
5	1/13/2018 2:00	1149	1038	>1%
6	1/13/2018 5:00	670	669	>1%
7	1/13/2018 6:00	662	664	>1%
8	1/13/2018 7:00	524	526	>1%
9	1/13/2018 8:00	610	608	>1%
10	1/13/2018 9:00	655	658	>1%
11	1/13/2018 10:00	579	579	>1%
12	1/13/2018 12:00	1281	1141	>1%
13	1/13/2018 13:00	1728	1327	>1%
14	1/13/2018 14:00	1456	1323	>1%
15	1/13/2018 15:00	1365	1323	>1%
16	1/13/2018 16:00	1284	1274	>1%
17	1/13/2018 17:00	1413	1320	>1%

Periods Over 500 ppm CO @ 0% O ₂ 1- hour Avg.	Date and End Time	Measured 1-Hour Avg. (ppm CO)	Verified 1-hour Avg. (ppm CO)	% O2
18	1/13/2018 18:00	1310	1301	>1%
19	1/13/2018 19:00	1293	1280	>1%
20	1/13/2018 20:00	1019	1022	>1%
21	1/13/2018 21:00	951	793	>1%
22	1/13/2018 23:00	744	426	>1%
23	1/14/2018 0:00	1364	627	>1%

Incident C – Flare H2S Exceedance from Amine Unit Malfunction

On January 31, 2018, an upset in the Amine Unit resulted in an over pressurization of the fuel system feeding the unit which relieved to the flare. This upset resulted in two (2) exceedances of 162 ppm 3-hr rolling average limit for H2S (186, 207 ppmvd) from 0700 to 0900 hrs. Flare H2S scavenger was used to reduce flare H2S emissions during the event.

There were no exceedances of the flare 500 lbs. SO₂ /24-hour reportable quantity or applicable flare vent gas work practice standard. SPPRC believes these periods to be exempt under SSM provisions of the regulations and is providing the data for informational purposes only.

Periods Over 162 ppm H ₂ S, 3-hour Avg.	Date and Time	Measured 3- Hour Avg. (ppm H ₂ S)
1	1/31/18 07:00	186
2	1/31:00 08:00	207

Incident D - Flare H2S Exceedance Due to Frozen Valve on Back-up Tailgas Compressor

On 2/4/2018, operators were in the process of switching from the main crude tail gas compressor to the back-up compressor for maintenance work. At approximately 8:37 PM, the discharge check valve on the back-up compressor was discovered to be frozen closed, which caused no flow going to the FCC Main Column Overhead. As a result, this caused the foul water stripper system to over pressure and relieve to the flare though pressure relief valve. The foul water stripper system pressure relief to the flare resulted in two exceedances of the flare H2S 162 PPM 3hr rolling average. The operator switched back to the main crude tail gas compressor and steam was used to thaw the frozen discharge valve on the back-up compressor. Heat tracing will be added to the discharge valves and related section of piping on the back-up compressor by 9/28/18. Flare H2S scavenger was used to reduce flare H2S emissions during the event.

There were no exceedances of the flare 500 lbs. SO₂ /24-hour reportable quantity or applicable flare vent gas work practice standard. SPPRC believes these periods to be exempt under SSM provisions of the regulations and is providing the data for informational purposes only.

Periods Over 162 ppm H ₂ S, 3-hour Avg.	Date and Time	Measured 3- Hour Avg. (ppm H ₂ S)
1	02/04/18, 21:00	184

Periods Over 162 ppm H ₂ S, 3-hour Avg.	Date and Time	Measured 3- Hour Avg. (ppm H ₂ S)
2	02/04/18, 22:00	201

Incident E - Flare H2S Exceedance during Preparation for Level Indicator Maintenance

On March 15, 2018, three exceedances of the flare H2S 162 ppm 3-hr rolling average were noted on March 15 from 0000 to 0300 hrs. Preliminary review indicates these exceedances were associated with preparing a level indicator (32-LI-5C) for maintenance. The instrument was isolated and depressurized to the tail gas compressor prior. Then the instrument was steamed to the flare. The instrument is part of the safety instrumentation system for the Unit 32 Hot Flash Drum that closes a valve during emergency upsets or equipment malfunctions. When the elevated Flare H2S was noted, steaming of the instrument to the flare was stopped and was sent back to the tail gas compressor. Flare H2S scavenger had already been added proactively prior to the start of the maintenance work to reduce flare H2S emissions during the event.

There were no exceedances of the flare 500 lbs. SO₂ /24-hour reportable quantity or applicable flare vent gas work practice standard.

Periods Over 162 ppm H ₂ S, 3-hour Avg.	Date and Time	Measured 3- Hour Avg. (ppm H ₂ S)
1	03/15/18, 00:00	339
2	03/15/18, 01:00	346
3	03/15/18, 02:00	358

Incident F - Flare H2S Exceedance during Equipment Preparation for Maintenance

On March 17, 2018, six exceedances of 162 ppm 3-hr rolling average limit for H2S were noted. Six exceedances occurred from 1000 to 1300 hrs. and from 2200 to March 18, 0100 hrs. Preliminary review indicates these exceedances were associated with draining a heat exchanger (31E-1A) in order to perform maintenance. Flare H2S scavenger was used to reduce flare H2S emissions during the event. This incident is currently under investigation.

There were no exceedances of the flare 500 lbs. SO_2 /24-hour reportable quantity or applicable flare vent gas work practice standard.

Periods Over 162 ppm H ₂ S, 3-hour Avg.	Date and Time	Measured 3- Hour Avg. (ppm H ₂ S)
1	03/17/18, 10:00	172
2	03/17/18, 11:00	180
3	03/17/18, 12:00	189
4	03/17/18, 22:00	519
5	03/17/18, 23:00	524
6	03/18/18, 00:00	526

SARA Reportable Release Summary

There were no SARA reportable releases during 1st quarter 2018.

SBC/BWON Vent Gas System

During the 1st quarter of 2018, BWON vent gasses were bypassed around the WWTP TO and associated temperature monitor 0.2% percent of the time or 4.6 hours.

Bypasses were the result of natural gas curtailment, scheduled maintenance and/or testing activities, or minor WWTP malfunctions where the oxidizer is bypassed due to safety concerns and process malfunctions.

Monitor Bypass Summary

There were no monitor bypasses during the 1st quarter 2018.

SRU Bypass Summary

There were no SRU bypasses during the 1st quarter 2018 that resulted in an exceedance of an SO₂ emission limit.

1st Quarter 2018 - Percent Excess Emissions and CEM Down	time Summary (Corrected	on 1/16/19)
Source Description	Excess Emission Percent Time Exceeded This Quarter (1)	Continuous Monitor Downtime Percent This Quarter (2,3)
Refinery Fuel Gas Drum (H2S ppmv, 3-hr rolling ave)	0.00%	0.23%
Refinery Fuel Gas Drum (H2S ppmv, 365-day rolling ave)	0.00%	0.23%
Heater 28-B-1 (lb SO2/mmbtu, 3 hr average)	0.00%	
Heater 28-B-1 (1b SO2/hr, 3 hr average)	0.00%	
Heater 28-B-1 fuel gas flow meter Heater 28-B-1 fuel oil flow meter		0.05%
FCC Opacity (30%, 6-min average)	0.41%	0.69%
FCC Opacity (20%, 3-hr average)	0.00%	0.69%
FCC CO (ppm)	0.00% 1.26%	0.42%
FCC NOx (ppm - 365 day rolling average)	0.00%	0.42%
FCC NOx (ppm - 7 day rolling average)	0.00%	0.42%
FCC SO2 (ppm - 7 day rolling average) FCC SO2 (ppm - 365 day rolling average)	0.00%	0.42%
FCC SO2 (lb/hr)	0.00%	0.42%
FCC SOx (lb/1000 lb coke burn)	0.00%	0.42%
Heater 5-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	
Heater 5-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	
Heater 5-B-1 fuel gas flow meter		0.05%
Heater 5-B-1 fuel oil flow meter		0.00%
Heater 2-B-3 (lbs SO2/hr, 3-hr rolling ave) Heater 2-B-3 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	0.05%
Heater 2-B-3 (1bs NOx/mmbtu, 3-hr rolling ave)	0.00%	0.65%
Heater 2-B-3 (lbs NOx/mmbtu, 12-Month rolling ave)	0.00%	0.65%
Heater 2-B-3 NSP fuel gas flow meter		0.00%
Heater 2-B-3 Fuel Gas flow meter		0.05%
Heater 2-B-3 NOX/O2 CEM		0.65%
Heater 1-B-5 (lbs SO2/hr, 3-hr rolling ave)	0.00%	
Heater 1-B-5 (lbs SO2/mmbtu, 3-hr rolling ave) Heater 1-B-5 fuel gas flow meter	0.00%	0.19%
Heater 1-B-7 (lbs SO2/hr, 3-hr rolling ave)	0.00%	0.150
Heater 1-B-7 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	
Heater 1-B-7 fuel gas flow meter		0.05%
Heater 1-B-7 fuel oil flow meter		0.00%
Heater 29-B-1/29-B-2 (lbs SO2/hr, 3-hr rolling ave)	0.00%	
Heater 29-B-1/29-B-2 (lbs SO2/mmbtu, 3-hr rolling ave) Heater 29-B-1/29-B-2 fuel gas flow meter	0.00%	0.23%
Heater 3-B-1/2/3 (lbs SO2/hr, 3-hr rolling ave)	0.00%	0,23%
Heater 3-B-1/2/3 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	
Heater 3-B-1/2/3 fuel gas flow meter		0.05%
Heater 3-B-4 (lbs SO2/hr, 3-hr rolling ave)	0.00%	
Heater 3-B-4 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	
Heater 3-B-4 fuel gas flow meter	0.00%	0.05%
Heater 3-B-7 (lbs SO2/hr, 3-hr rolling ave) Heater 3-B-7 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	
Heater 3-B-7 fuel gas flow meter		0.05%
Heater 3-B-8 (lbs SO2/hr, 3-hr rolling ave)	0.00%	
Heater 3-B-8 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	
Heater 3-B-8 fuel gas flow meter		0.05%
Heater 34-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	
Heater 34-B-1 (lbs SO2/mmbtu, 3-hr rolling ave) Heater 34-B-1 fuel gas flow meter	0.00%	0.19%
Heater 34-B-2 (lbs SO2/hr, 3-hr rolling ave)	0.00%	0.15%
Heater 34-B-2 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	
Heater 34-B-2 fuel gas flow meter		0.14%
Heater 34-B-2 fuel gas flow meter		0.00%
Heater 32-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	
Heater 32-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	0. 51%
Heater 32-B-1 fuel gas flow meter Heater 32-B-1 (NOx lb/mmbtu, 365 day rolling ave)	0.00%	0.51% 0.51%
Heater 10-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	0.51%
Heater 10-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	
Heater 10-B-1 fuel gas flow meter		0.05%
Heater 10-B-1 fuel oil flow meter		0.00%

1st Quarter 2018 - Percent Excess Emissions and CEM Downtime	Summary (Corrected	on 1/16/19)
Source Description	Excess Emission Percent Time Exceeded This Quarter (1)	Continuous Monitor Downtime Percent This Quarter (2,3)
#2 SRU/SCOT SO2/O2 (ppmv, 12-hr ave)	0.00%	0.83%
#2 SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave)	0.00%	0.83%
#2 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave)	0.00%	0.83%
#2 SRU/SCOT bypasses	0.00%	
Heater 36-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	
Heater 36-B-1 (lbs SO2/mmbtu, 3-hr rolling ave) Heater 36-B-1 fuel gas flow meter	0.00%	0.05%
Heater 36-B-1 Idel gas flow meter Heater 36-B-2, 3, and 4 (lbs SO2/hr, 3-hr rolling ave)	0.00%	0.05%
Heater 36-B-2, 3, and 4 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	***
Heater 36-B-2, 3, and 4 fuel gas flow meter		0.05%
Heater 36-B-6E (lbs SO2/hr, 3-hr rolling ave)	0.00%	
Heater 36-B-6E (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	
Heater 36-B-6E fuel gas flow meter		0.14%
Heater 36-B-6W (lbs SO2/hr, 3-hr rolling ave)	0.00%	
Heater 36-B-6W (lbs SO2/mmbtu, 3-hr rolling ave) Heater 36-B-6W fuel gas flow meter	0.00%	0.14%
Heater 37-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	0.14%
Heater 37-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	
Heater 37-B-1 fuel gas flow meter	~ ~ ~	0.05%
Heater 37-B-2 (lbs SO2/hr, 3-hr rolling ave)	0.00%	
Heater 37-B-2 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	
Heater 37-B-2 fuel gas flow meter		0.05%
Heaters 38-B-1, 38-B-2 (lb SO2/hr, 3-hr rolling ave) Heaters 38-B-1, 38-B-2 (lb SO2/mmbtu, 3-hr rolling ave)	0.00%	
Heaters 38-B-1, 38-B-2 NSP Gas flow meter	0.00%	0.05%
Heaters 38-B-1, 38-B-2 PSA fuel gas flow meter		0.05%
Light oil loadrack VRU (TOC ppmv, 6-hr average)	0.00%	0.00%
Light oil loadrack- Permanent VCU (Limit = Temp ≥215 deg F, 3-hr rolling ave)	0.00%	0.00%
Refinery flare (presence of pilots)	0.00%	0.00%
Refinery flare (MMSCF/24-hours)	0.00%	0.00%
Refinery flare - SARA Reportable emissions - SO2 Refinery flare - SARA Reportable emissions - NOx	0.00%	0.60%
Refinery flare - H2S (3-hour rolling average)	1.06%	0.42%
W.W.T.P. SBC Offgas (H2S ppmv, 365-day rolling ave)	0.00%	0.05%
W.W.T.P. Thermal Oxidizer, SBC Offgas (Temp Deg. F, 3-hr rolling ave)	0.00%	0.14%
W.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp Deg. F, 3-hr rolling ave)	0.00%	0.14%
#3 SRU/SCOT SO2/02 (ppmv, 12-hr ave)	0.00%	0.65%
#3 SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave)	0.00%	0.65%
#3 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave) #3 SRU/SCOT Bypasses	0.00%	0.65%
NP VEPR Phase 1 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave)	0.00%	0.00%
NP VEPR Phase 2 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave)	0.00%	0.00%
Boiler 7 NOx (lb/MMBtu, 30 day rolling ave)	0.00%	0.28%
Boiler 7 SO2 (lb/MMBtu, 3-hr rolling ave)	0.00%	
Boiler 7 fuel gas flow meter		0.05%
Boiler 8 NOx (1b/MMBtu, 30 day rolling ave)	0.00%	0.32%
Boiler 8 SO2 (lb/MMBtu, 3-hr rolling ave) Boiler 8 fuel gas flow meter	0.00%	0.05%
Heater 8-B-1 (lb SO2/mmbtu, 3-hr average)	0.00%	0.05%
Heater 8-B-1 (lb SO2/hr, 3-hr average)	0.00%	
Heater 8-B-1 (ppmvd, 30-day average)	0.00%	5.93%
Heater 8-B-1 fuel gas flow meter		0.05%
GP 032 CO (TPY, Combined 12-month Rolling Sum)	0.00%	0.37%
Boiler 7 CO (TPY, Combined 12-month Rolling Sum w/ Boiler 8) Boiler 8 CO (TPY, Combined 12-month Rolling Sum w/ Boiler 7)		0.37%
GP 032 NOx (TPY, Combined 12-month Rolling Sum)	0.00%	0.37%
Boiler 7 NOx (TPY, Combined 12 month Rolling Sum w/ Boiler 8)		0.28%
Boiler 8 NOx (TPY, Combined 12-month Rolling Sum w/ Boiler 7)		0.32%
Notes:		
(1) 0.00% indicates No Excess Emissions.		
(2) Monitor Downtime includes daily calibration checks for opacity.		1

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one):	SO2	SOX	NOx C	co	CO2	02	TRS	H2S	HCL	Opacity
	Other:	Organic F	HAP per MAC	T Subpa	rt INNI					
	0.1101.	Organize i	ini per inie	-	MONITOR					
REPORTING QUARTER:	First, 20	18			MODEL:	Advance	Optima (U	ras 14) Gas	Analyzer	
FACILITY:				1	MFR:	ABB				
St. Paul Park Refining	Co. LLC									
					EMISSION I	LIMIT AND A	VERAGE TIN	/IE:		
EMISSION SUBJECT ITEM:	EQUI2					500 ppmv	rd - 1 hou:	r average	-	
EMISSION UNIT(S):	FCC regene	erator			EMISSION I					
								10 CFR 60.1	L03 (a)	
1000041755							3.1565(a)			
ASSOCIATED ITEMS:	EQUI164,	FREA17				40 CFR 6	3, MACT S	ubpart UUU,	Table 8, Opti	on 2
PROCESS UNIT DESCRIPTION:		EQUI2 is	a fluidize	d catal	ytic crac	king unit	·			
		The mater	rials from	the FCC	are rout	ed to the	FCC colum	m for frac	tionation.	
						RATING HO	URS			
					OF EMISSIO	ON UNIT:	-	2160	=	
A. EMISSION DATA SUMMARY					B. CEM PER	REORMANC	E SUMMARY	,		
						<u></u>				
1 DURATION OF EXCESS EMIS	SSIONS (HRS)					1 DURATIO	N OF CEM D	OWNTIME DU	JRING	
a) Startup/Shutdown		0.00	9 27.00	}		SOURCE	OPERATION	(HRS)		
b) Control equipment			0.00	ļ		a) Monitor	malfunction		0.00	
c) Process problems			0.00	I		b) Non-mo	nitor malfund	tion	0.00	
d) Other known causes			0.00			c) QA calib	bration		0.00	
e) Unknown causes			0.00	ì		d) Other k	nown causes		9.00	
f) Soot blowing			0.00			e) Unknow	vn causes		0.00	
g) Fuel problems			0.00	ĺ						
2 TOTAL DURATION (HRS)		0.00	9 27.00			2 TOTAL DI	JRATION (HI	RS)	9.00	
3 PERCENT OF TOTAL				ì		3 PERCENT	OF TOTAL			
EXCESS EMISSIONS		0.00	0_1.26%			CEM DOV	VNTIME		0.42%	
							·····			
	FOR OPACI	TY, RECORD	ALL TIMES IN	N MINUTE	ES. FOR GA	ASES, RECC	ORD ALL TIM	ES IN HOURS	3.	
% Total Excess Emissions =		Total Durati	ion of Excess I	Emissions	s / (Total Op	erating Time	- CEM Dowr	itime)		
% Total CEM Downtime =		CEM Down	time / Total Op	erating T	ime					
NOTES: Actual monitored values are no	oted in this secti	on.								
During excess emission events	s, a value equal	to 1.5 times t	he high calibra	tion gas	concentratio	n is used to	replace any a	nalyzer readir	ngs over that value	since
measured data points are not	verifiable or acci	urate when at	least 50% gre	ater than	the high ca	libration gas	concentration	n. See Excess	s Emissions Summa	ary
for greater detail.										
If no exceedances: I certify that the re	equired analyses						,	•		ances during the reporting
SUBMITTED BY:	•		age at fron				•	DATE:		

CONTINUOUS EMISSION MONITOR EXCESS EMISSION REPORT

REPORTING QUARTER:			First, 20	18	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):			FCC reger	nerator	
POLLUTANT MONITORED:			CO and O2	2	
DATE/TIME		TOTAL DURATION (HRS)	MA CONCEN (ppm), hou		CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			Actual	Recalc	
1/12/20	018 21.00 2018 6:00	27.00 27.00	1968	1343	Please see the amendment to 10TR18 CEMS Excess Emissions and Downtime Report
b) Control equipment	1/1/2018 4/1/2018		No excess	aminoiono	
Total	4/1/2010	0.00	_ No excess e	emissions.	
c) Process problems	1/1/2018				
Total	4/1/2018	0.00	No excess o	emissions.	
d) Other known causes	1/1/2018 4/1/2018	0.00	_No excess e	emissions.	
		0.00			
e) Unknown causes Total	1/1/2018 4/1/2018	0.00	No excess e	emissions.	
f) Soot blowing	1/1/2018				
Total	4/1/2018	0.00	_No excess	emissions.	
g) Fuel problems	1/1/2018				
Total	4/1/2018	0.00	No excess	emissions.	

CONTINUOUS EMISSION MONITOR DOWNTIME REPORT

REPORTING QUARTER:		First, 2018	AQD FILE #: #0203 (AI ID 447)
EMISSION UNIT(S):		FCC regenerator	
POLLUTANT MONITORED:		CO and O2	
DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION	
a) Monitor malfunction			
Total	0.00	-	
b) Non-monitor malfunction			
Total	0.00	-	
c) QA calibration			
Total	0.00	-	
d) Other known causes			
2/21/2018 13:00			
2/21/2018 16:00	3.00	Communications error	
2/21/2018 18:00			
2/21/2018 19:00 2/22/2018 14:00	1.00	Communications error	
2/22/2018 14:00 2/22/2018 15:00 2/22/2018 17:00	1.00	Communications error	
2/22/2018 19:00 3/21/2018 10:00	2.00	Communications error	
3/21/2018 12:00 Total	2.00 9.00	Communications error	
e) Unknown causes			
Total	0.00	-	